

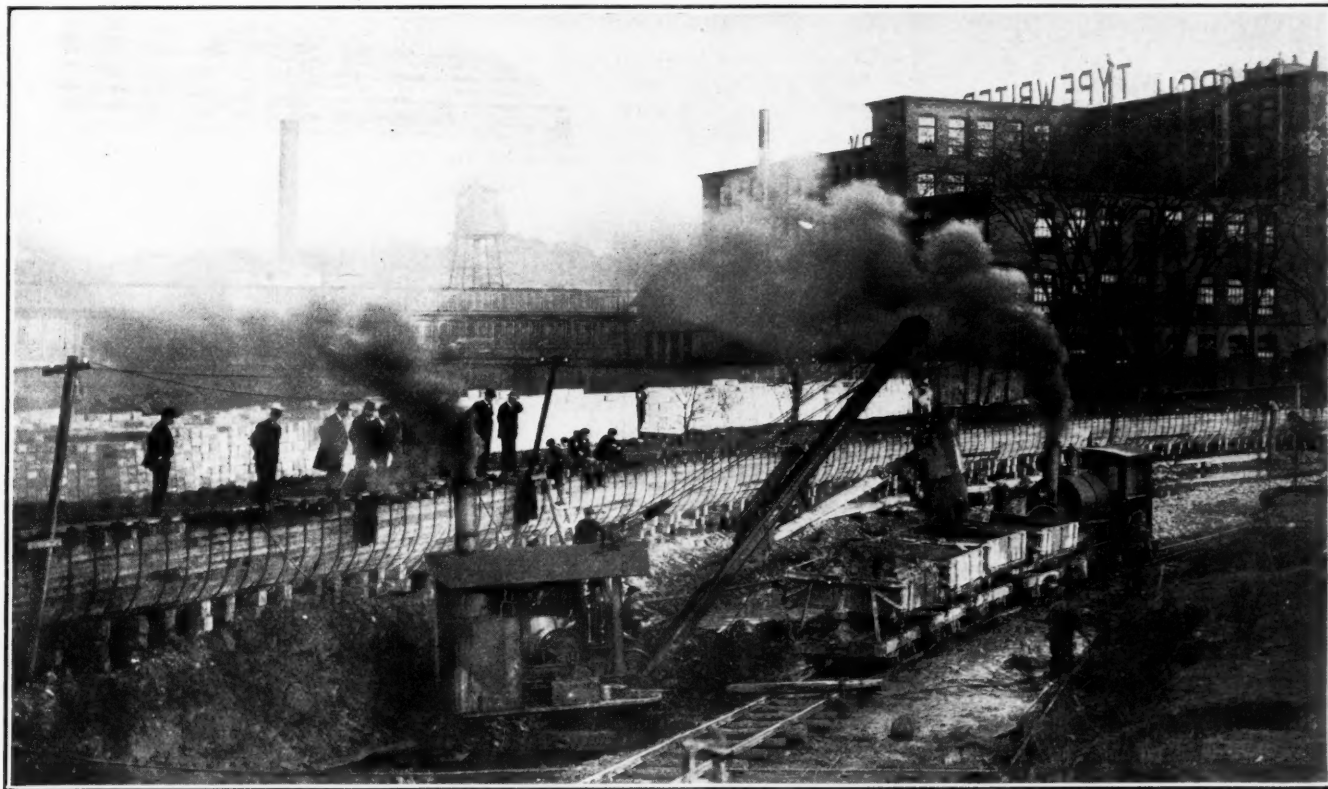
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And Engineer

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No. 6



EXCAVATION WORK AND TEMPORARY FLUME, ONONDAGA CREEK

CREEK IMPROVEMENT AT SYRACUSE

Preliminary Investigation—Determining Character of Soil—Current Measurements—Depth of Ground Water—Concrete Blocks for Lining Channel—Novel Features in Plans and Specifications

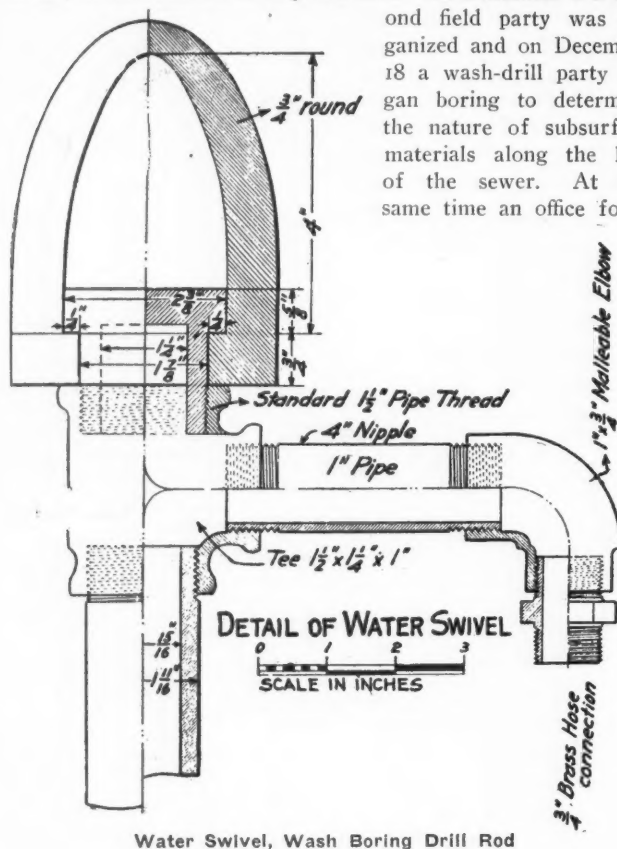
THE city of Syracuse, N. Y., with a population of about 130,000, drains into Butternut Creek, which flows into Oneida Lake and into Onondaga Creek, Harbor Brook and Ley Creek, which discharge into Onondaga Lake. About 85 per cent of the area drains into Onondaga Creek. The central part of the city and the northern part near the lake are fairly flat, but high hills and rolling country are found a mile or so from the center on south, east and west.

The city is sewered upon the combined system and these sewers, which have been built from time to time, all take the shortest route to an outlet into one of the creeks named. As might be expected, with the growth of the city these creeks became more and more foul, and Onondaga Creek and Harbor Brook especially have become intolerable nuisances. Onondaga Creek flows through the center of the city, and standing on the principal bridges one can see the septic action which is taking place, resulting in bubbles of gas which break constantly all over the surface of the creek.

Since 1895 the sewers have been built after a plan prepared by Samuel M. Gray, which plan provided for an intercepting sewer discharging into the lake. This sewer was not built at once, but in 1907 it was decided to begin the construction of this intercepting sewer. As the work would be of such magnitude it was thought best to place it in charge of a special commission, and the State Legislature of that year passed an act creating the Syracuse Intercepting Sewer Board, which is non-partisan, and consists of three members, Messrs. O. V. Tracy, Edward Joy and Henry C. Allen, the City Engineer. This act authorizes the board to construct intercepting sewers along Onondaga Creek and Harbor Creek; a storm-water sewer for the northeastern section of the city, and to regulate and improve the channels of Onondaga Creek and Harbor Brook to secure the efficient working of the intercepting sewer system. By an amendment to this act, passed last year, the board is also authorized to construct a sewage disposal plant.

In October, 1907, Mr. Glenn D. Holmes was appointed Chief

Engineer of the board, and a few days later a party was organized and surveys begun along Onondaga Creek, which, owing to its central location and the greater area which it drains, it was decided to improve first. On December 6 a second field party was organized and on December 18 a wash-drill party began boring to determine the nature of subsurface materials along the line of the sewer. At the same time an office force



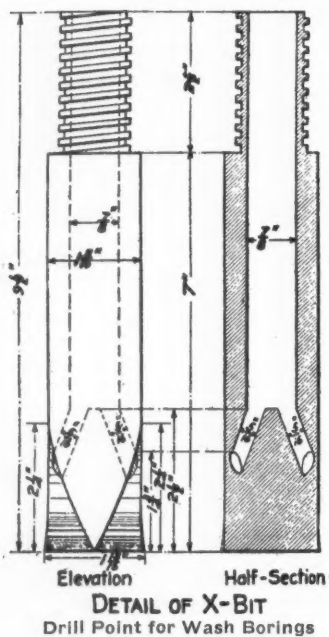
Water Swivel, Wash Boring Drill Rod

sewer and drain outlets and all cellars, thickness of building walls and other information.

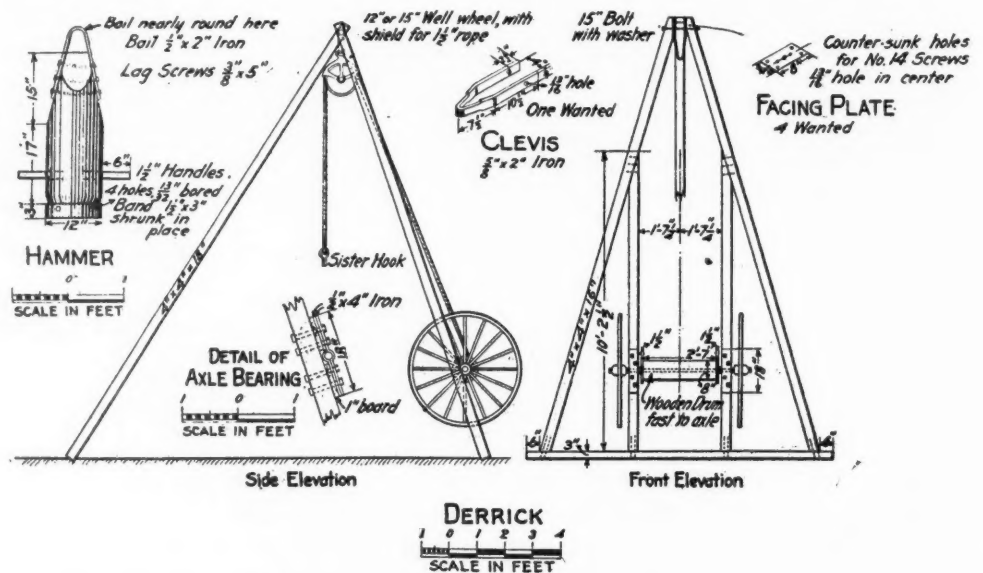
It was important to learn all existing conditions because the intercepting sewers would need to be at a considerable depth below the street surface, inasmuch as they must pass underneath the existing sewers. In addition to the subsurface structures, the surface features, such as pole lines, trees, fire hydrants, sewer inlets, street car tracks, etc., were carefully located.

The wash borings were made by driving 2½-inch wrought-iron pipe for a casing and using 1¼-inch extra heavy pipe for the drill rod. Two forms of drill points were used, depending upon the nature of the material to be penetrated. Ordinarily the X-bit having two chisel faces at right angles works to better advantage, but for hard cement gravel the ordinary chisel point makes more rapid progress. The drill points have several small holes a short distance back of the cutting face, connecting with the interior of the drill rod. Through these holes water is forced by means of a hand pump. As the drill rod is rotated or churned and loosens the earth, this loosened material is washed upward between the rod and casing by the flow of water forced down the interior of the drill rod. In sand, gravel or loose materials it is not possible to drill much below the bottom of the casing, for the reason that the soil surrounding the holes, when unprotected, caves in. The casing, therefore, must either be driven as the hole is drilled or it must be driven in advance. When a boulder was struck either the casing was withdrawn and a new hole started a few feet away, or occasionally a small charge of dynamite was used for splitting the boulder where there were no neighboring buildings or other possibilities of damage.

The materials washed up from the borings were collected in large-mouthed 4-ounce bottles, properly labeled, which bottles served as a permanent reference and could be inspected by contractors preliminary to bidding. In general, the soil was



DETAIL OF X-BIT
Drill Point for Wash Borings

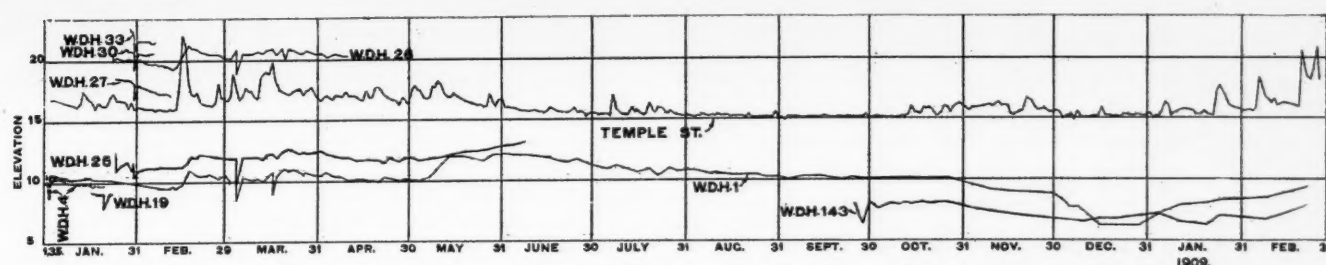


DERRICK FOR MAKING WASH DRILL BORINGS

collected all available information possessed by the city and local public service corporations regarding existing sewers, water mains, gas mains, electric conduits, etc., along the route of the intercepting sewer and its connections. Bench marks were established by precise level methods along the line of the work; a carefully measured and located base line was established along one side of the creek and used as a basis for topography taken for 100 to 150 feet on each side of the creek channel. All property lines, buildings, bridge abutments, retaining walls, sewer outlets and other important objects were carefully located and cross-sections were taken 25 to 50 feet apart; the leveling party also securing information in regard to the foundations of all structures along the creek, elevations of

found to be gravel and sand intermingled with more or less clay. The information thus obtained was shown upon the profile of the sewer. The borings were made along the proposed route at intervals of about 300 feet and the information obtained was of the greatest value, both to the engineers in designing and to prospective bidders.

In connection with this work there was secured another class of information which it is much less customary to obtain, namely, the depth and fluctuation of the ground water table. This was particularly desirable and valuable in this case because all of the work was to be carried on below this level. This information was secured at each of the wash-drill holes for periods ranging from a few days or weeks up to several



Fluctuation of Ground Water in Several Wash Drill Holes; Also of Water in Onondaga Creek at Temple Street
Sudden drops of ground water curves were caused by pumping out wells

months for a number of the holes, and for one hole the record extends over nearly three years.

In order to obtain this record of ground water, 1½-inch wrought-iron pipes were carefully lowered into the drill hole before pulling the outside casing. These pipes were left in place and the height to which the ground water rose in the pipes was measured by lowering a weighed float and measuring the distance from the top of the pipe. The water in the pipe was lowered two or three times at intervals of several days by pumping out the water within it to determine whether there was free connection with the water outside, and the water in the pipe was found to rise to the original level generally within 24 hours of the time of lowering it. An interesting and important feature ascertained was that the ground water table for a considerable distance along the route was several feet lower than the water surface in the creek near by. The ground water was approximately 2 feet lower in 1909 than in 1908.

The records of fluctuation and volume of Onondaga Creek and Harbor Brook were of particular importance in planning for the regulation and improvement of these water courses and in making provision for taking care of the flow during construction. As no continuous or reliable records of the discharge of these streams had theretofore been made, gauge stations were established and current meter measurements made of various discharges by use of a Price current meter, rated by Mr. R. E. Horton, Resident Engineer of the State Hydrographic Bureau. From these gaugings curves were plotted. The height of water at these gauges has been read daily, from which the records of run-off have been compiled.

For the purpose of obtaining the elevation of the extreme height reached by flood waters, numerous permanent gauges were made and erected at critical points along both water courses. These gauges were made by bolting together two 1-inch hemlock boards having a grooved recess between them and the recess was then painted with ordinary whitewash. When these were in place, the water rising in the grooves dissolved the whitewash, leaving a well-defined mark of the peak of the flood. These inexpensive gauges, which have now passed through three seasons, have given excellent results and are considered well adapted for the purpose for which they were intended. They are inspected after each period of extreme high water, repaired and whitewashed preparatory to recording the next flood.

Onondaga Creek follows a very tortuous course through the city and, owing to the uneven bottom, filled with stones and more or less of weeds and rubbish, it was found that considerable velocity would be secured in a free, smooth channel even though the grade should be made much flatter. Most of the old sewers discharge at or below the water level in the creek, and when the water was high it backed up these sewers to a considerable distance. Should this take place after the intercepting sewer was completed and connected up with the old sewers this water would tend to flood the interceptor. To prevent this as far as possible, and also to generally improve the condition of the creek, whose banks were very much of an eyesore, it was decided to lower the bed of the creek and to pave the new channel, the lowering in some places amounting to several feet.

Gaugings made by current meter of Onondaga Creek have now been continued for more than two years. The maximum

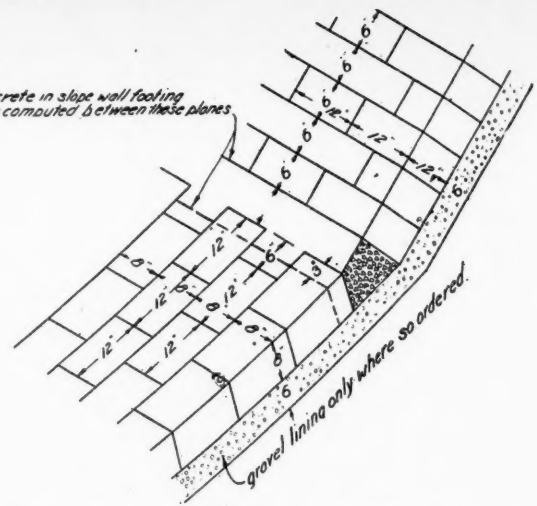
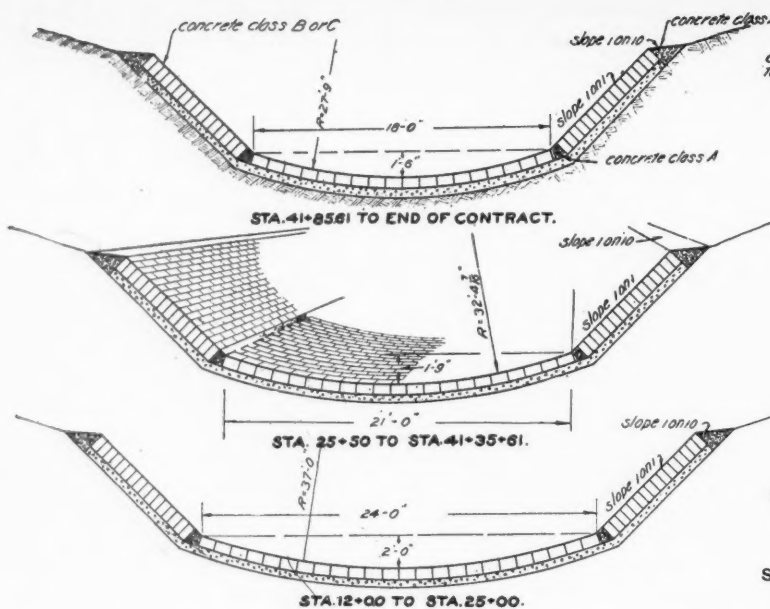
recorded flow is 1,063 cubic feet per second and the minimum 46 cubic feet. The drainage area of this creek above the center of the city is about 108 square miles. The drainage of Harbor Brook is about 10 square miles. The improved Onondaga Creek channel was designed to carry about 6 cubic feet per second per square mile of drainage area before the water will back up through the old sewers sufficiently to begin discharging into the intercepting sewer. This will insure the full discharge by each lateral into the intercepting sewer of all the sewage until such time as the flow therein exceeds "double sewage" (twice the estimated dry-weather flow), by which time the flow of the creek will be sufficient to cause ample dilution of the excess flow. Having the capacity of the improved channel determined as noted above and the elevation of the



CURRENT METER PARTY

water surface for this capacity limited by the elevation of certain existing sewers and the water surface of Onondaga Lake, the cross-section of the channel was designed to meet these conditions.

Previous experience had shown the necessity of lining the channel, all of which is in sand and gravel. For the lining concrete blocks were finally adopted, since monolithic concrete seemed impracticable because of the large amount of ground water which would be continually seeping out along the entire area of the new channel. The blocks were laid with open joint so that there was no new cement to be washed out by the seepage water, and, moreover, the open joints prevented pressure from the ground water behind the blocks. In designing the blocks it was considered essential that they should be of such size and width that, while permitting men to lay them by hand continuously throughout the day, they might still be sufficiently heavy to hold their position. Invert blocks were made 8 by 8 by 12 inches and slope-wall blocks 6 by 12 by 12 inches, the average weight of each being 65 pounds. In each case two dimensions of the blocks were made equal in order that there might be four similar faces, any one of which could be laid in the face of the wall, which would, to a large extent, avoid the necessity of rejecting blocks with imperfections in one or two faces only. Where the bed of the new channel presented a suitable foundation the blocks are laid directly



SKETCH SHOWING DIMENSIONS AND METHOD OF LAYING BLOCKS.

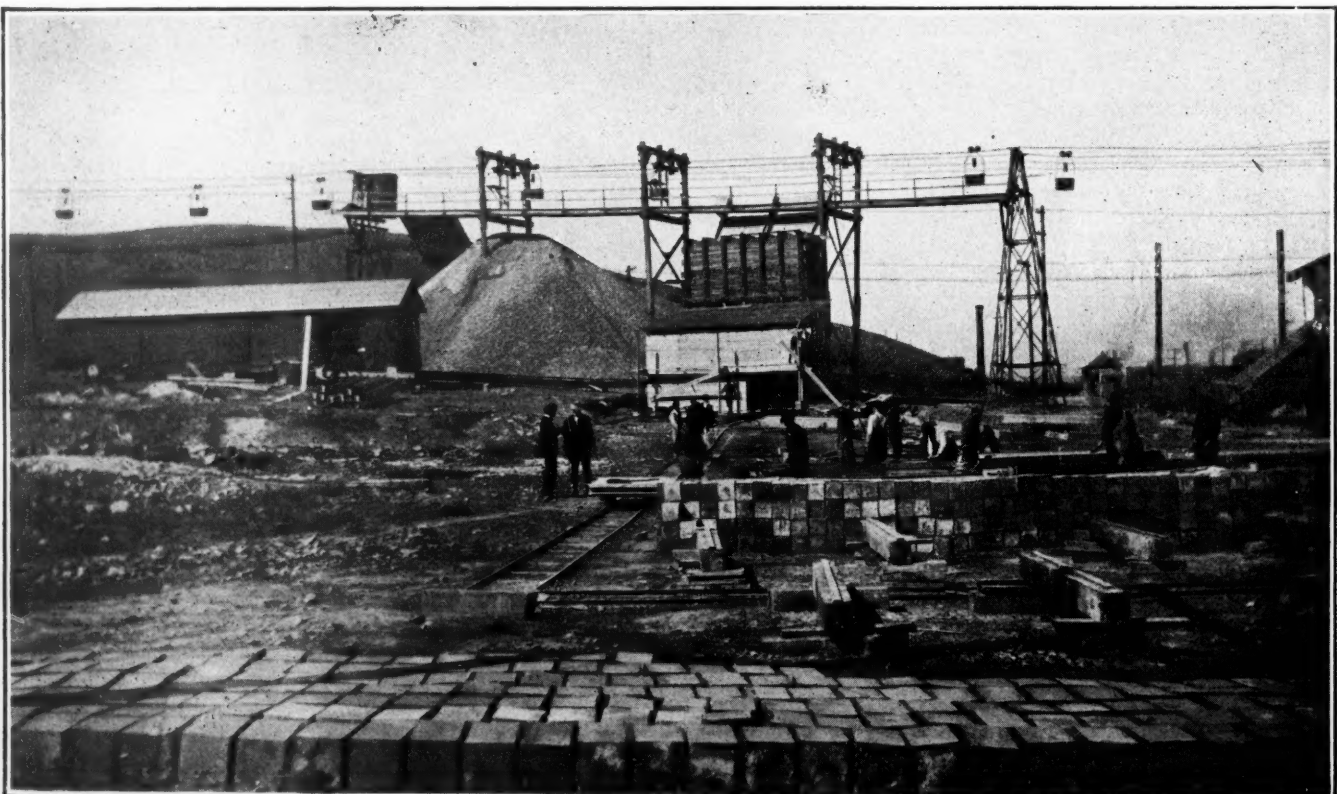
SECTIONS AND DETAILS OF CREEK LINING

upon it. If any should be found of a soft or quicksand nature the excavation will be deepened or back-filled with gravel or sand. Under and in front of sewer openings or where water falls in any volume upon the blocks, the joints are made with a full bed of mortar.

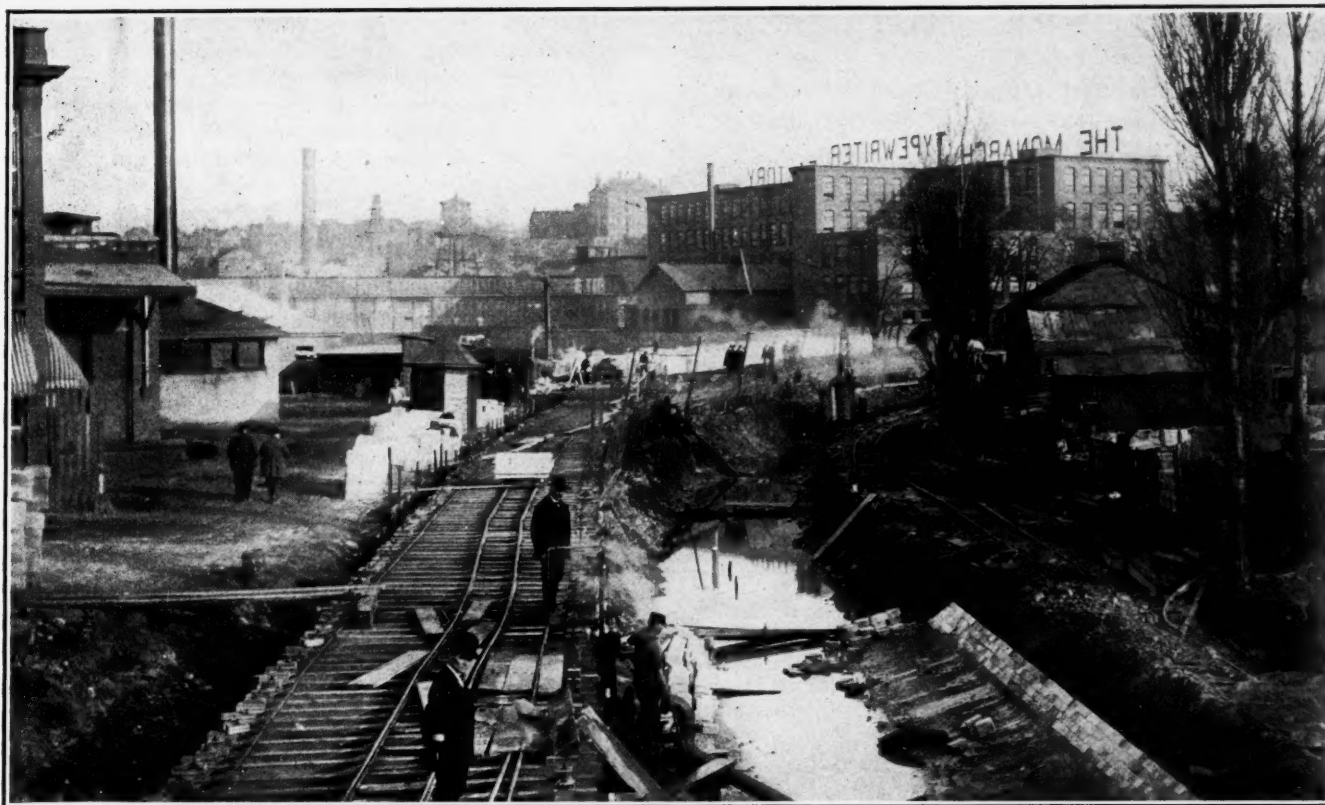
The concrete blocks for lining the channel were made at the grounds of the Solvay Company, at Solvay, a suburb of Syracuse, where were special facilities in the way of railroad sidings, trestles, etc. The concrete of which the blocks were made was mixed in general of one part of cement to eight parts of aggregate, the fine and coarse aggregate being proportioned to give the maximum density. An inspector was kept constantly on the work, who kept track of the total amounts of the various materials used, and these were used as a check on the accuracy of the mixture. The cement was mixed with a Trump mixer. Tests were made of every load of cement and of the sand and gravel used in the concrete, but in spite of these precautions certain of the blocks which have been laid in the

channel have not weathered very well, a number having gone to pieces on the face. These will be replaced with perfect blocks, the fact that the joints were not cemented making this comparatively easy.

In making the blocks the concrete was mixed rather wet and was discharged from the mixer directly into a set of molds. These molds rested upon the flat top of a car which could be run directly under the spout of the mixer. The concrete was tamped into the molds and a trowel worked around the faces to press the large aggregate away from the face of the block and leave the latter smooth. The top surfaces of the blocks were then struck off and the car run on a portable track to the yard, where the blocks were stacked about 24 hours later and allowed to set for several days or weeks. While setting they were kept wet by a hose. (It suggests itself to us that failure to keep certain of the blocks sufficiently wet during the early days of setting, while exposed to a hot sun, might account for some of the imperfect blocks.)



BLOCK-MAKING PLANT AT SOLVAY



EXCAVATION AND LAYING CONCRETE BLOCK LINING

There are several details in connection with the working out of the plans and specifications which are of special interest. One of these was the fact that all plans were drawn with the idea of being photographed to a reduced size, and consequently the lettering was made larger than it would otherwise have been. The success of this may be seen by the line drawings which accompany this description, which are reproduced directly from such photographed plans. These photographs were made in sheets of a standard size of 6 by 8 inches, and blue prints of them were bound in books, a complete set for one of the contracts containing about 70 sheets. Several sets of these were made and a copy given to the contractor and others carried by the engineers in charge of the work.

The specifications were gotten up with unusual care. Instead of stating in the contract that "the specifications are to be considered a part of this contract," the specifications and contract are bound together, and of one contract, that for the main intercepting sewer, the specifications form article 7 of the contract, of which there are altogether 39 articles; these with the form of bond, etc., occupy 122 pages. A very complete index, occupying over six pages, facilitates reference to any particular part of the contract; but to more readily find a given part of the specifications, to which reference is most frequently made, there is printed in large black-faced type at

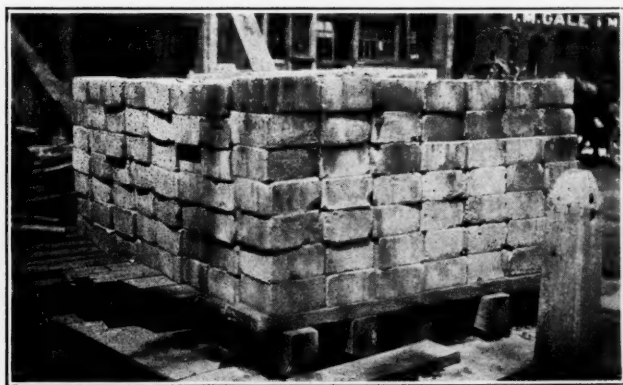
the upper outer corner of each page the title of the section which appears on that page, which titles attract the eye readily in rapidly turning over the pages.

While the work really consists of two parts, the excavation and lining of the creek channel and the construction of sewers, these are in some cases quite intimately related; this being especially the case with the inverted siphons which pass under the bed of the creek. The work now being done is largely included in two contracts, one for creek and inverted siphons, the other for intercepting sewer and connections; but as a matter of fact the contractors for the two have combined and are working in common, although such partnership is not recognized by the board. In a later number we will publish a description of the actual construction, which contains many features of interest.

Mr. Glenn D. Holmes has continued as Chief Engineer in charge of construction, and his force at present includes as Assistant Engineers, Messrs. C. M. Parce, Earl D. Wood, O. K. Harwood, Rexford J. Lyon and Stephen B. Vernon, together with a number of instrument men, rodmen, inspectors and laborers. We are indebted to Mr. Holmes for the above information.

STREET CLEANING IN SAN FRANCISCO

In the annual report of the Street Cleaning Department of San Francisco, Cal., for 1909, made by Superintendent Wm. O'Shaghnessy to the Board of Public Works, are given in detail the duties performed by the Department during the year. The total number of square yards swept amounted to 299,233,242, of which 265,644,369 were by hand labor and the remainder by sweeping machines. There were sprinkled 164,094,300 lineal feet of pavement, and in addition, 965,515 square yards were flushed. In this work there were employed an average number of 114 sweepers, 1,007 dirt wagons, 274 sprinkling wagons, 66 sweeping machines; and 9 flushers and 6 sanding machines were used during several months. There were removed from the public streets 48,835 loads of sweepings. The total cost of this work was \$252,960.85, or a monthly average of \$21,080.07, or \$808.18 for each week day. The minimum monthly cost was \$14,785 in February, and the maximum, \$25,568.30 in May.



PILE OF CONCRETE BLOCKS

PUBLIC LIGHTING CONTRACTS

For Energy and Maintenance, Energy Only and Illumination— Detail Comparison of the Three Styles of Contract —The Last Favored by the Author

THE subject of contracts for public lighting was discussed in a paper before the Institution of Gas Engineers (England) recently by Mr. Jacques Abady. He classified the forms of street lighting contracts in general use under three heads:

(A) The contract for supply of energy, with maintenance, payment being made for so much energy and not for so much light.

(B) The contract for supply of energy only, maintenance being undertaken by a contractor acting for the municipality or by the municipal lighting department itself.

(C) The contract for supply of light, payment being made for so much light, irrespective of the energy required to produce it.

In comparing these as to relative effectiveness, he assumes three results as being desirable:

(1) The due observance of the terms of the contract entered into.

(2) The efficient maintenance of the standard of lighting contemplated by both parties when the contract was entered into.

(3) The facility or encouragement for either party to take advantage, during the contract pending, of the introduction of improved methods, either to reduce the cost of producing the light or obtain a greater light for the same cost.

A contract must be understood to be something very difficult to draw up, but comparatively easy to break, in spirit, at least. It is of the utmost importance that its terms should be such that it will be to the advantage of both parties to adhere to them. Mr. Abady considered each of the three forms of contract with reference to each of the three desiderata.

Under contract form A, point 1 hinges upon the facility for measuring the energy supplied, whether this be gas or electricity. In the case of gas, one method is to supply this through burners having nipples which, tested in the laboratory at a certain pressure, will pass a known amount of gas. This requires actual test of the nipple itself, and while a few might be tested and assumed to represent the average of all, this may not be the case, and it may be that the pressure of the test is not that maintained at each street lamp. If pressure recorders be used progress in the direction of improved means of gas distribution might be retarded. If, however, the contract stipulates a certain consumption by the nipple test and the maintenance of a certain pressure at all points, with damages for failure in pressure, this point would seem to be fairly well met. The use of governors is not recommended because of their tendency to reduce pressure, whereas with incandescent burners increase in pressure should be encouraged. The author does not recommend either of these methods. He also thinks the average meter system to be unsatisfactory because it induces a tendency to excessive consumption of gas and does not insure community of interest. Tests of consumption in situ are very difficult to carry out, whether gas or electricity be the source of light. The objections to laboratory tests of nipples apply also to laboratory tests of electric lamps, with the additional objection in the case of arc lamps that an undue and increasing proportion of the current may be absorbed by the lamp mechanism.

As to the second point, efficient maintenance, there would be considerable difficulty should the company be careless or not desirous of keeping the maintenance up at a high standard, in compelling it to do this. Renewing of mantles might be delayed or a poor quality of mantle or carbon be used, even with a literal adherence to the terms of the contract as generally drawn up.

In the third point, Mr. Abady considers the A form of con-

tract particularly weak. The contract cannot anticipate improvements in burners or lamps and so cannot specify that these shall in future be used. If the company suggests substituting an improved lamp or burner which will furnish the same light with less consumption of energy, the city will probably claim the full amount of gas or electricity which it pays for. On the other hand, the company has no incentive to substitute improved lamps or burners, especially as such substitution would mean considerable cost without any recompense.

Taking up the second or B form of contract, the same remarks as to point 1 apply as in the case of the A form. As to point 2, however—the maintenance of the lighting units—the municipality has control over this, but the contractor for energy is very much at its mercy. The reputation of the gas or electric company as a furnisher of illuminant also is likely to suffer through failure of maintenance of lamps for which it is in no wise responsible.

As to the third point, the municipality can, if it chooses to pay for them, install improved burners and furnish a better light without affecting the contractor's position in the least. It cannot, however, furnish the same light at less cost, since the cost is fixed, unless there is an agreement to pay for the total energy consumed without specifying the amount of energy to be furnished each lamp, and that the payment should be so much per lamp. If such an arrangement has been made, however, then the difficulties of measuring the total energies are very great. Even in this case no provision is made for improvements in connection with gas lighting which may be obtained by increasing pressure and reducing quality, which may be necessary to obtain maximum efficiency with certain burners.

In discussing the C form of contract, Mr. Abady considers that the question as to control over the proper fulfillment of the contract is one about which there is considerable difference of opinion and room for discussion. In this the testing of the light given by the lamp is the feature of maximum importance. Just how the light should be measured is one concerning which all authorities as yet do not agree. A form of contract entered into by the Westminster City Council and approved by Mr. Abady contained the following clauses, this being a gas lighting contract:

Each lamp is to be fitted with burners, mantles, globes and fittings, as the case may be, given a minimum of standard candle power, respectively, as directly measured by the Council's portable photometric apparatus placed at an agreed distance above ground level, and is to burn hours per annum in accordance with a daily schedule. The reflectors are not to be so shaped as to concentrate the illumination at the foot of the lamp, but horizontally flat or slightly convex or otherwise so as to disburse the rays. The tests will be taken in such a manner as to insure that the glaring bars shall not interfere with the results obtained.

The candle-power shall be arrived at by taking the average of two sets of readings in any position with regard to the light under test—one set at an angle of 20 degrees and a second set at an angle of 50 degrees to the horizontal. The photometer used shall be one working on the law of inverse squares, and so constructed as to read accurately whatever the respective colors of the light under test and standard light.

Not less than three nor more than six readings, at regular intervals of not less than 30 seconds or more than 60 seconds, shall be made at each angle; and the average of the readings shall be termed the reading or illuminating power at that angle. If upon a test being made the illuminating power of any lamp falls below the prescribed standard and is not more than 10 per cent below it, a test may be made of each of the two nearest lights; and if the aggregate of the light from the three lamps equals the aggregate required by the contract, no damages shall be recoverable. The tests to be made only in reasonably clear weather—not during rain, mist, or fog—and in the presence of a representative of the contractor should he so desire.

The light given shall be of a steady, invariable character, of a white or yellowish white color.

Discussing the question as to whether a photometer test is sufficiently definite and certain, the writer explains that the reason for the two angles is that a given form of light, which gives maximum illumination at some one angle, may not be favored. To take the mean hemispherical candle-power is not

practicable, as this involves readings on the street at angles from 0 to 90 degrees, which would be tedious and practically impossible. Rays between 60 and 80 degrees from the horizontal (nearly under the light itself), if excessive, are so to the detriment of those thrown upon the area more distant from the lamp and their inclusion would encourage rather than discourage the concentration of light near the lamp or burner. An examination of the lighting curves of electric and gas lamps, arcs, filaments, upright and inverted mantles, shows that in the majority of cases the mean of the light between 20 and 50 degrees from the horizontal practically coincides with the mean hemispherical intensity.

With this specification there is no ambiguity as to the meaning of the contract, as might be the case were the light defined by a foot-candle test which would involve disagreements as to the behavior of light rays with respect to surfaces and viewpoint. It is, of course, necessary to define in the clearest manner the photometer itself and the way it is to be used. It is quite simple to agree upon a definite primary standard of light and also upon the secondary standard. The writer believes that there should in addition be provided three safeguards against error or chances of dispute. These are: a definition of the weather in which official tests are permissible; absence of inflection of damages if the two lamps nearest to a defective lamp are giving such light as will bring the average of the three up to standard; and the presence of a contractor's representative during the test. He admits that this method of testing is open to the same objection as certain of the other contract clauses criticized by him, in that it is practicable to test only a small percentage of the total number of lamps. On the other hand, he contends that what is measured is the exact thing which the municipality desires to buy, namely, illumination; and that the measuring of this is subject to less error than the metering of gas or electricity, the calibrating of nipples, etc.

As to point 2, the writer maintains that this form of contract insures, so far as any contract can, the efficient maintenance of the standard of lighting contemplated by both parties. As to the third point, the contractor is certainly favored in that he may by the adoption of improved lamps or methods produce the required illumination at less expenditure of energy. Mr. Abady believes that the municipality also would benefit, because the contractor would undoubtedly propose the furnishing of more light at a slightly greater rate, and thus share with the municipality the economy of producing such greater light due to improved methods. Just why the contractor should think it desirable to share the saving in this way rather than to continue to furnish the light contracted for at less cost to himself and thus pocket all the saving does not seem to us to be made plain. It need hardly be said that the writer of the article favors the third form of contract.

SIDEWALKS IN HOLYOKE

WHILE nine out of ten of the municipal reports which reach this office give data concerning the miles of cement sidewalk laid during the previous year, and practically no reference to any other except an occasional flag sidewalk, or a wooden sidewalk in the suburbs, we find City Engineer James L. Tighe of Holyoke, Mass., stating in his annual report, "Practically all of our sidewalks are built of brick and tar concrete. Within the last few years, however, Portland cement concrete sidewalk is becoming rather popular even in our residential as well as in our business streets. The greater cost of these sidewalks is offset by their neat appearance as well as their much greater durability."

It may be said that in many New England cities both brick and tar sidewalks are laid much more carefully and with better material than is ordinarily found in more southern cities, and consequently the cement sidewalk was not hailed with that immediate acceptance in lieu of the dangerous and disgraceful sidewalks which had existed for years, as was the case in many cities elsewhere.

CREOSOTE FOR WOOD BLOCKS

Information Collected by Cincinnati Bureau of Municipal Research—Quantity of Carbon and Specific Gravity Commercially Practicable

A MORE or less heated discussion has been engaged in by the Bureau of Municipal Research of Cincinnati, O., and the Director of Public Service of that city—mostly by the former—concerning the specifications under which that city obtains creosoted wood block for paving. The Bureau maintains that contracts for wood block have been let at excessive prices, low bids having been rejected for reasons which are not justified or justifiable; that the reasons given are that the articles offered by the low bidders do not conform to the specifications; but it maintains that such specifications contain unnecessary clauses which result in increased price without corresponding increased value in the paving blocks.

It is not at all difficult for the bureau to find plenty of argument concerning the creosote specifications, since engineers generally appear to be very much in the dark concerning the matter, and even the experts are either non-committal or do not entirely agree among themselves. We have already published the opinions of several experts as to what materials should be used for treating wood blocks, but the Cincinnati Bureau of Research has recently collected the opinions of a number of manufacturers and dealers, having, we believe, written to all of such in this country. The inquiries made contained the following question:

1. Can you secure or furnish such a product as is required by the Cincinnati specifications strictly interpreted, and if so, at approximately what price per gallon?
2. Can you secure or furnish an anthracene or heavy green oil that will meet these specifications, and if so at what price?
3. If the specifications were altered, allowing 5 per cent of suspended matter (that is, including free carbon), could you secure or furnish such a product and at approximately what price per gallon?
4. Could this latter product be readily prepared, or if not, is it largely in the control of special interests?

The Cincinnati specifications for creosote oil are as follows:

The heavy or dead oil of coal tar shall conform to the following specifications when tested: The specific gravity at 68 degrees F. shall be not less than 1.10. When distilled in a retort with the thermometer suspended not less than one inch above the oil, it shall lose not more than 35 per cent up to 315 degrees centigrade.

The distillation shall be made with approximately 100 grams of oil in a six-ounce retort.

The distillation shall be completed within 30 minutes after the first portion of the distillate passes into the receiver. The oil shall be free from carbon and shall contain not more than 2½ per cent of matter in suspension. The oil must be free from adulterations; it must be obtained wholly and entirely from coal tar and must not contain any oil derived from water gas tar, oil gas tar or other tars.

In recent contracts the following typewritten interpretation has been fastened upon the contract blanks:

Any oil which does not contain more than ¾ of one per cent of free carbon will, for the purpose of these specifications, be held to be free from carbon.

The Bureau made inquiry of the Gulfport Creosoting Company, National Lumber and Creosoting Company, Southern Creosoting Company, Barrett Manufacturing Company, Semet-Solvay Company, Kettle River Company, American Creosoting Company, Atlantic Creosoting and Wood Preserving Works, Dominion Tar and Chemical Company, Limited, C. Lembcke and Company, Colman Creosote Works, West Pascagoula Creosoting Works, C. E. Mills Oil Company, Gerhard Brothers and Schoch, American Creosote Works, Wyckoff Pipe and Creosoting Company, Ayer and Lord Tie Company, Southern Wood Preserving Company, Walker Chemical Works, Puget Sound Wood Preserving Company, Galveston Creosoting Company, Louisiana Creosoting Company, National Aniline and Chemical Company, New Orleans Wood Preserving Company and Georgia Pine Turpentine Company, from all of which replies were received. Also to 18 other companies from which no

replies were received. The six last named contained no direct answers to the questions asked; and of the others, some answered all the questions and others one or two only.

In answer to the first question most of the replies stated that no oil is made commercially which meets the specification. Three, however, stated that the oil might be obtained in the European markets. A statement common to many of the letters is that oil free from carbon and with specific gravity as high as 1.10 and such a low distillate is practically impossible to manufacture on a commercial scale. One firm stated that it would be possible to secure anthracene that would meet the specification, but the oil alone in a square yard of 3-inch blocks would cost approximately \$4.80. The difficulties in the specifications appear to lie chiefly in the exclusion of all carbon, whereas if this were made from 3 to 5 per cent the material could be obtained without difficulty; and in the specific gravity, one company stating that "no oil, wholly distilled, of a specific gravity of 1.10 or above can be, or ever has been, commercially prepared in the United States in such quantities as are demanded by the paving industry." Several stated that if the specifications were altered to allow 5 per cent suspended matter, including free carbon, the oil could be obtained in quantities in the open market at 7 or 8 cents per gallon.

The Bureau gives a synopsis of the several replies received as follows, prefacing it with a few remarks:

To be a *commercial proposition*, a material should be (a) readily obtainable in sufficient quantities for the work to be done; and (b) obtainable at prices which make it, all things considered, a reasonable competitor of other materials used for the same purpose.

The testimony of manufacturers, dealers and experts may be summarized as follows:

1. Two kinds of coal tar oils are in common use for treating wood paving blocks—one, a coal tar creosote of a gravity approximately between 1.03 and 1.08 at 68 degrees F., with practically no free carbon; the other, generally produced as a mixture of this creosote with coal tar or pitch, the gravity being 1.10 or higher at 68 degrees F. and containing small percentages of free carbon up to 5 per cent.

2. Both of these are commercially feasible—i. e. they are readily obtainable in large quantities, at prices from 6 to 8 cts. per gallon.

3. The kind of oil which the Director of Public Service is requiring is not obtainable in sufficient quantities to fulfill the contracts now let in this city alone; is variously quoted at 10, 16, 25, 40 and 70 cts. per gallon, and its use for heavy impregnation of wood paving blocks has never been heard of.

BRONX VALLEY SEWER TUNNEL

In our issue of December 30, 1908, we gave a general description of the sewer which is being constructed for conducting the sewage from the several municipalities in the Bronx Valley discharging it into the Hudson River at Yonkers. The original plan was to carry this sewage well out into the channel by two four-foot cast iron pipes. Recently, however, the government has prohibited the laying of the pipes in the river bed and they are being stopped at the bulkhead line. There is a general anticipation also that the government will compel the partial purification of the sewage before it is discharged into the river, and provision is being made for the interposing of a plant about a mile and a half back from the outlet.

At present the cut and cover work is practically completed, and the tunneling, of which there is about two miles through the hills at Yonkers; has been completed so far as excavation is concerned. It still remains to build some of the river crossings and the lining of the tunnel. The tunnel is of varying size, depending upon the grade. About $1\frac{1}{4}$ miles from the river the tunnel passes under the tracks of the New York Central railroad, and these are at such a slight elevation above the river that it was necessary to reduce the grade from there to the river to .075 per cent and increase the size to 8 ft. 6 in. Under the tracks the tunnel is reduced in height to 5 feet, the section being that of 2 circular arcs, each of about 8 feet radius, intersecting at the sides of the tunnel. Above this the grade increases and the tunnel is circular with a diameter of about 6 feet. The lower end of the tunnel terminates in a gate chamber, at the lower end of which the two 48-inch iron pipes begin, at

which point they are provided with iron gates. These pipes extend 464 feet to the bulkhead line. They pass under the main line of the New York Central Railroad, and under the tracks are embedded in concrete which entirely fills the space between them and for 12 inches on all sides.

At one side of the valley previously referred to, where the section of the tunnel takes a lenticular shape, the sewer is made in open cut for about 100 feet, and it is at this point that the purification plant will be located if one is required.

Beginning at the river a 12-inch underdrain is carried in the bottom of the tunnel, underneath the completed section of sewer. This receives water seeping from the rock or earth through which the tunnel is carried, such water being conducted to the underdrain where necessary by vertical pipes set against the rock and imbedded in the concrete.

The tunnel is being lined with concrete in the invert, and also in the arch where this consists of earth or soft rock. Where the rock is hard and stable, however, no lining is provided for. The original intention and contract was to carry the invert concrete to a point 12 to 15 inches below the springing line. After this work had been practically completed, however, the commission decided to carry the concrete to a point 6 inches above the springing line, from which point it slopes back to the rock at an angle of 45 degrees. This extending of the invert lining has required the construction and use of additional forms consisting of a frame carrying about 2 feet of lagging on each side, which frame is so propped up in the sewer as to bring the lagging at the points where the extension of the invert lining is to be made.

Two or three kinds of centers were tried in this work, but the contractors, the American Pipe Manufacturing Company, concluded that the most satisfactory was a home-made center of thin sheet iron held in shape and position by numerous wooden forms well braced. These were well covered with heavy oil, and as the concrete for the inner seven inches of the lining was quite rich, being mixed 1:2:4, a very smooth surface was obtained. Outside of this 7-inch ring the concrete is mixed 1:3:6, and the contractor is allowed to embed in it 50 per cent of broken stone of any size which can be gotten into the space conveniently.

Material used in the tunnel is lowered at two shafts and the two ends in small end-dump cars, which are hauled by mules on narrow gauge contractors' track laid in the bottom of the tunnel. The body of these cars has a capacity of about one-half cubic yard. The stone is crushed with Climax and Reliance crushers. The entire tunnel is lighted by incandescent lamps suspended from the roof.

ASHES AND GARBAGE IN SOMERVILLE

In Somerville, Mass., the collection of ashes, garbage and other refuse materials is under the control of the Board of Health, and a competent superintendent is employed to take charge of the department. Seventy men are employed, and 34 horses, 20 ash carts, 5 paper wagons and 13 garbage wagons are owned by the department. Ashes and non-combustible materials are deposited upon city dumps and combustible materials are burned in an incinerating plant, except that clean paper, rags, bottles and other merchantable materials are sold at a profit.

The Board during last year continued to dispose of the garbage, which is sold directly to farmers and others, and is handled in a thoroughly sanitary and satisfactory manner. The demand for the garbage exceeds the supply and the city receives considerable financial returns from the same. During the year 7,900 loads of garbage were collected, two collections being made each week, with an extra collection during the summer months at hotels, stores and other establishments producing large quantities. The sale of garbage and merchantable refuse in 1909 yielded \$8,649.76. The collection of the garbage cost \$17,694.75 for labor; that of collecting the ashes \$29,440.20, and additional expenses, of which \$14,000 was the superintendent's salary, and most of the balance was expenses in connection with the horses and stable, made the total \$64,091.25.

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CHANGE OF ADDRESS

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Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL AND ENGINEER, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

AUGUST 10, 1910

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Contracts for Street Lighting

ONE class of purchases which City Councils find difficult in making satisfactorily to themselves and their constituents is that of street lighting. There are two general items to a contract for this—the thing purchased and the amount paid; and a decision upon each presents difficulties. Judgment as to the latter would seem easy, but local conditions vary so greatly that what would be an exorbitant price in one city would bankrupt the lighting company in another. The same is true of such a standard commodity as building sand, which can be profitably sold in some cities at 50 cents a load, but which it would cost more than that in freight to get to other cities.

Shall the city pay for what it gets or for what the power plant furnishes? And how shall it designate the unit on which payment is to be made, and how use it in checking up the amount delivered? Shall it pay for current or for illumination, and how shall it measure either? These questions are discussed on another page. All authorities will not agree with the conclusions of the author, but he states the case quite clearly.

One point upon which he rightly lays stress is the desirability of making every point of the specifications clear beyond any doubt or dispute.

The old form of contract calling for merely a "2,000 candle-power lamp" really carried only a general meaning. Specifying the amount of current was much more accurate; but what the city really wants is illumination, and if this can be accurately measured it would seem to be the most logical unit on which to base payment by the city to the lighting company.

Public Work in San Francisco

THE report for last year of Mr. Marsden Manson, City Engineer of San Francisco, which has recently been published, calls attention to four great municipal projects which have been undertaken by that city since the fire. The first of these, and considered by him that of greatest importance, is the high-pressure fire system which he states "in area covered and in the use of efficient means is equal, if not superior, to that of any other city." This includes two fire boats and 94 miles of high-pressure pipe; the entire system being practically insured against accident by having four separate and independent sources of supply, and in addition, by a system of heavily reinforced concrete cisterns scattered in generous numbers throughout the city.

During the year nearly \$60,000 was spent in the extension of the sewerage system, which, however, still requires a large amount of work before it can be considered complete.

The third project is that of a municipal incinerating plant. A bond issue of May 11, 1908, made available \$1,000,000 for the construction of modern incinerators. The engineering department soon after began the collection of data required for intelligent designing of such incinerators, engaging Dr. Rudolph Hering as consulting engineer in this work. Bids for two incinerating plants will soon be received, and an outline of the specifications will be published by us within the next week or two.

The fourth item, and the one concerning which the public at large is perhaps most generally informed, is that of the Hetch Hetchy water supply. The city is endeavoring to obtain a municipal supply and "to break loose from monopoly control," and through its experts decided upon this source, the dam for which would be in the United States reservation, as the most available. They have been opposed in this by water supply and power companies; also by individuals honestly interested in the preservation of the natural beauty of our parks, although it is suspected that corporate influence has aroused this opposition through misrepresentation of facts. The exact outcome is still somewhat uncertain.

Forethought in Municipal Work

THE Superintendent of Streets of Hartford, Conn., calls the attention of the council of that city to the desirability of deciding as early as possible upon what streets they will probably pave during 1911, stating that it would be desirable to make this decision as early as August 15, 1910, if possible. This would be very much earlier than such decisions are made in the majority of cases, as in many cities the paving work for the year is not decided upon until early in the spring of the year in question. His object in recommending such an early decision is not so much for the purpose of enabling the plans for the paving to be thoroughly matured and the contractor to make ample preparation for an early start, as for arranging that all the underground pipes which need to be repaired or which it is intended to lay, including house connections, may be attended to this year and the trenches given the fall, winter and springs months in which to settle before the new paving is placed over them.

The idea is certainly an excellent one. It is coming to be more or less common for cities to require all public service corporations having pipes laid beneath the street surface, as well as municipal departments having charge of sub-surface constructions, to do all work on these which can be foreseen previous to the laying of pavements. Too frequently, however, sufficient warning of this is not given and the laying of the pavement follows almost immediately upon the back filling of

the trench. There are few soils in which even the greatest care which a contractor can be compelled to give to back filling will prevent some future settlement. A large part of the settlement will take place during the first winter and early spring. By giving a year's notice beforehand those whose duty it is to attend to these underground structures can, and should be required to, complete all necessary work at least eight months before the beginning of the paving, during which time much of the settlement will occur. We are expecting in a short time to give considerable information concerning the practice of cities in requiring this kind of preparatory work previous to paving, showing to what extent cities throughout the country are requiring such work. Few of them, we believe, give as much warning as is suggested by Mr. Ford for Hartford, but we recommend his suggestion as worthy of adoption in all cities.

WILMETTE PUMPING STATION, CHICAGO

FOLLOWING the completion of the Chicago drainage canal proper, further safeguards against the pollution of the lake were carried forward, the first being an intercepting sewer along the lake shore on the south side of the city extending as far south as 87th street and covering all that section included up to the Chicago river. At 39th street a pumping station was built which not only handled the sewage collected by the intercepting sewer, but also took large quantities of water from Lake Michigan and discharged it with the sewage into the south branch of the river, thus tending to maintain a current which would keep it free from any dangerous or disagreeable condition.

This station contains four Allis-Chalmers centrifugal pumps for handling sewage and two screw pumps for taking the water from the lake. It has a total capacity of 2,100,000,000 gallons per 24 hours, which is the largest pumping capacity of any single plant in the world. After this was completed, work was started on what is known as the Lawrence avenue station, which handles the sewage from the intercepting sewer along the north shore of the city and also takes water from Lake Michigan and discharges it into the north branch of the Chicago river.

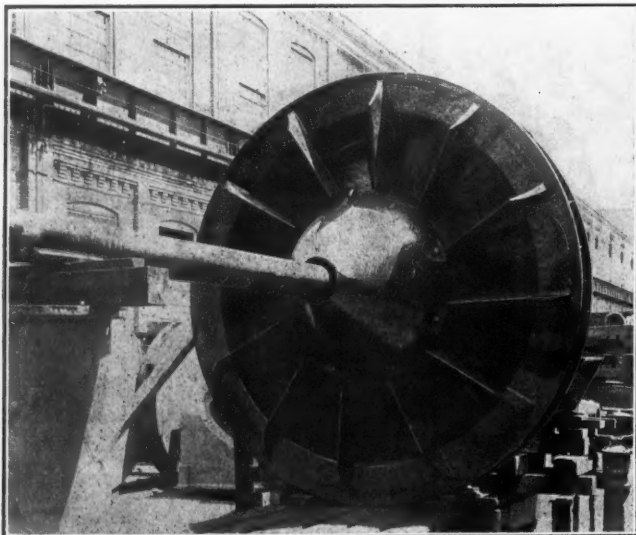
Besides these subjects already completed, the district now has under construction what is known as the north shore channel, on which will be located the Wilmette pumping station. There is also in contemplation a plan for the reversal of flow in the Calumet river at the south of the city; and when this is completed, together with certain sewage pumping stations which the city itself maintains, the entire shore front of Chicago and its immediate vicinity will be well protected.

The construction of the north shore channel is progressing quite rapidly now and probably within the course of the present year will be completed and in operation. This channel takes water from Lake Michigan near Wilmette and discharges it into the north branch of the Chicago river. From the lake to Sheridan road, a distance of about 400 ft., the water will flow by gravity. Here a viaduct carries this road across the canal channel, and, built as a part of the viaduct and beneath it, is the pumping station and a lock. This lock will be used for allowing barges and tugs, used in keeping the channel free, to go into the lake for discharging their loads. The bridge proper will consist of a steel frame work faced with Bedford stone, thus giving the appearance of a stone bridge. It will have a paved roadway 46 feet wide and two sidewalks each 8 feet wide, with ornamental stone railings.

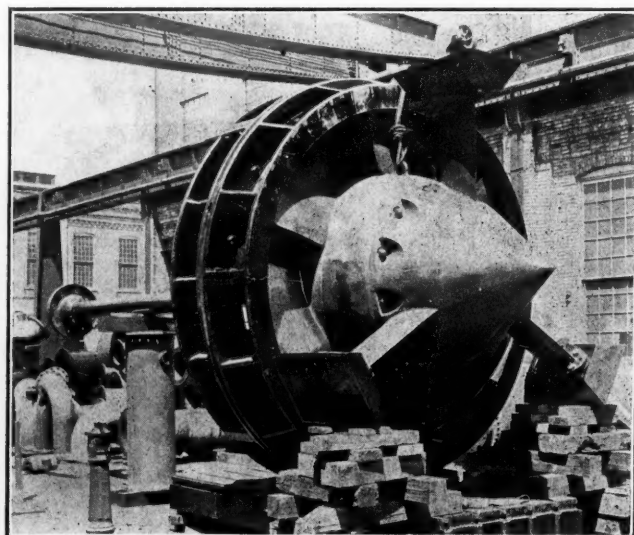
Beneath the center span of the bridge will be located the pumping station. This will consist of a motor room and transformer room each 29 feet by 54 feet inside dimensions. Four horizontal screw pumps, each having a capacity of fifteen thousand cubic feet per minute against a head of 3 feet when running 75 r.p.m., will be installed and a view of one of these, taken at the shops of the manufacturers, Allis-Chalmers Company, is shown herewith. Each of these pumps will be driven by a 150-hp, three-phase, 60-cycle, 2300-volt induction motor. The pump runners will be located on the easterly side of the building with the shafts extended horizontally into the motor room. These pumps are similar in construction to others of the same character installed by the same company in the 39th street and Lawrence avenue stations.

CAMERON SEPTIC PATENTS

THE Cameron Septic Tank Company has recently sent to cities which they believe to be infringing on their patents a letter giving its version of the suit concerning their patent which was referred to in our issue of July 6, 1910. This case is, the letter states, on the calendar of the U. S. Supreme Court for the October term of this year. Continuing the letter states: "We are entirely confident that the Supreme Court, as the final arbiter of all matters involving the application of an international treaty, will decide this issue in favor of this patent, just as the same issue has recently been decided in favor of another patent in the U. S. Court of Appeals. (Hennebique Company versus Myers)." The company states that it has largely confined its efforts to pressing this particular case to a decision by the Supreme Court, and meantime has done little towards initiating or advancing other litigations; but this is not to be taken as consenting to alleged infringements.



DISCHARGE SIDE



SUCTION SIDE

ONE OF FOUR SCREW PUMPS FOR WILMETTE PUMPING STATION, CHICAGO
Capacity 250 cubic feet of water per second

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets
Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Progress of Charleston Battery Boulevard

Charleston, S. C.—Good progress marks the construction of the piling, concrete work and filling on the Boulevard project, and City Engineer J. H. Dingle says that he has no doubt that the work will be completed in contract time, by January 1, and then the Battery Boulevard will be a reality. The McLean Construction Company is building the concrete wall at the rate of about forty-five feet a day. Some days, as much as ninety feet of the wall is done, but on account of the difficulty in the delivery of the material and the work under the conditions of the tide and other difficulties, this pace can not be regularly maintained, and the contracting company is enabled to average only about forty-five feet a day. This is, however, a good rate of progress, and results are showing up in good form with the wall now at the foot of Limehouse street. The construction force reached Limehouse street last week, thus marking the completion of a little more than half of the concrete work which is to be done. Fine progress is also making on the piling. The pile driving force has now reached South Bay, which leaves only about 600 feet of this work to be done when the piling portion of the contract will have been completed. The driving of the piles has also suffered delays, which were uncontrollable, and but for the delays, even greater progress would have been recorded. At the rate of about 6,000 cubic yards a day, the big dredge of the Sanford Ross Company is pumping the mud and sand of the river into the forty-four acres of reclaimed land, and the work is showing up well. The river deposit makes an even better filling than was expected. The sand and mud are drying out hard and solid with little shrinkage and a better filling could not have been designed for the reclaimed section.

Property Owners Must Pay for Occupying Sidewalks

Dallas, Tex.—At the regular meeting of the City Commissioners, Mayor Davis recommended, in regard to the much-discussed sidewalk basement entrance for which so many builders have petitioned, that each company or individual who erects or has erected already a building which has a sidewalk entrance to the basement be given a contract to sign which will make them pay to the city in proportion to the benefits received from their use of the walk. Contending that the walk is city property and belongs to the public, the Mayor argued that the city should receive some benefit from the public being inconvenienced.

Rush Road Building

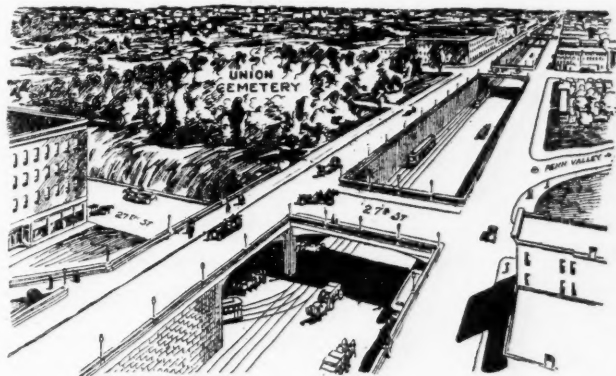
Des Moines, Ia.—A dirt road 380 miles long, stretching across the entire State, was recently put in order by a force of 10,000 men in one hour's time. To do this required a lot of preliminary planning and organization. The idea was conceived at the good roads meeting in Des Moines, in the spring. It was found convenient to use the political organizations as means for carrying on the work. The Democratic and Republican local committees worked in harmony, or friendly rivalry, according to a common plan. The idea was carried out and the road was actually put in order in a single hour's time.

Ridges in Creosote Wood Paving for Horses

Kansas City, Mo.—The creosote block paving between the street car tracks on Walnut street, between Fifth street and Missouri avenue is to have ridges cut in it. John M. Egan, President of the Street Railway Company, told the Public Utilities Commission that if that did not prevent horses falling he will replace the paving with asphalt or granite blocks. This action will be in response to a vigorous complaint from the commission firms on that part of Walnut street that the creosote blocks, while almost indestructible, are hard on horses.

General Rearrangement of Streets Proposed

Kansas City, Mo.—Maps and studies for a general and comprehensive system of traffic ways connecting all parts of the city and also the new Union Station on easy grades have been submitted to the Mayor's cabinet. They were prepared by engineers representing respectively the Board of Public Works and the Park Commissioners selected several weeks ago as a joint commission to submit a recommendation on this subject. It was in line with a recent suggestion by D. J. Haff, at a public gathering for meeting the need of the city for a uniform and intercon-



PROPOSED TWO-LEVEL STREET

nected plan for traffic ways. Main street, from Twenty-fourth to Thirty-second street, as shown in the illustration, is to be widened to 180 feet, with a depressed roadway in the center 100 feet wide for a 3 per cent grade roadway between the points named. Roadways on each side of the depressed section to be maintained on the present grade so as to not disturb abutting property on the west, the higher level roadways to be connected with intersecting streets by viaducts.

Broader Rule on Roads

Harrisburg, Pa.—The State Highway Department has received an opinion from Deputy Attorney General W. M. Hargest to the effect that under the Jones road act the cost of surveys, etc., may be taken out of the appropriation as a whole for the improvement of township roads, and the remainder of the appropriation apportioned among the townships abolishing the work tax system of building roads, the division being at the full rate of \$20 per mile of road. The department has asked whether the cost of surveys should be deducted from the \$20. Mr. Hargest also advises that the department may not prepare plans and specifications for roads in townships that have not abolished the work tax system.

Talk over Ocean Boulevard Plan

Long Branch, N. J.—After lying dormant for months, the movement for a State boulevard, which had its inception here two years ago at a dinner given for Governor Fort, was revived by the State Commission and others at a dinner held last week at the Waterwitch Club, near Atlantic Highlands. Covers were spread for fifty, and Governor Fort was the guest of honor. All the mayors of nearby resorts, as well as the county officials, were present. The dinner was given by Judge Foster of the Monmouth county courts. The proposed route between Atlantic Highlands, the place of beginning, and the old Highlands was mapped out by the State Commission members, who were taken over the route in automobiles. Senator Frelinghuysen and Speaker Ward were members of the Governor's party. The members of the State Highway Commission present were T. Frank Appleby, Hall Packer, H. S. Terhune, Thomas Somers, G. F. Laurie and William F. Kellner.

Asphalt Pavement Shifts and Bulges

Mansfield, O.—The asphalt paving on South Mulberry at Second street has been cutting up some peculiar capers for a few days. It was first noticed that the asphalt had apparently been gouged loose from the curbing on the east side of the street and it was supposed to be the work of a vehicle of some sort. Later, however, the asphalt immediately north of the West Second street curb line on Mulberry sprang up. When buggies and autos went over it a hollow sound came forth. During the night the asphalt which had sprung up along with a part of the foundation subsided somewhat although still considerably out of its regular latitude. The next day the asphalt at the point mentioned had sprung up again in bad shape. About everybody who passed the place made an inspection of the strange gyrations of the asphalt paving. The street, which presents the appearance of having a large, round cask placed under the asphalt from curb to curb, now shows indications of cracking.

Asphalt Block Not Suitable for Newark

Newark, N. J.—The Board of Works Commissioners and Chief Engineer M. R. Sherrerd, with Street Engineer Howell have returned from an inspection of asphalt block paved streets in New York, Brooklyn and Staten Island. While the trip was made with an idea of learning the adaptability of the material for Market street, it was the consensus of opinion of the inspecting party that it would not be suitable for that thoroughfare or any other where there is heavy traffic.

Paving Blocks of Ashes and Clay

Rochester, N. Y.—Heretofore the local clay has been considered of very little value unmixing with expensive clay imported from other states for any purpose and of absolutely no value for paving. It remained for Mr. Karl Langenbeck, a Boston engineering expert, to discover that the clay around Boston, which closely resembles the Monroe County clay, could be made into excellent vitrified paving bricks by the mixture of common coal ashes. Small batches of bricks made according to the Boston man's recipes have been burned by County Engineer J. Y. McClintock, the result being so pleasing that Mr. Langenbeck was sent for for a conference. It is likely that the largest number of 2-in. cubes laid this summer in the Kleinfaster pavement, which Mr. McClintock has been experimenting with for two years, will be the ash-clay bricks. The piece of this pavement laid on the Ridge has attracted considerable attention among automobile men, and the development of the idea is being watched with much interest. Indications are that this method will play a large part in the road building of the future.

Roughened Concrete Roadway for Union Street Hill

Schenectady, N. Y.—The many accidents to automobilists from skidding on the pavement at the foot of the Union street hill has led to a movement for the purpose of asking that the concrete roughened roadway now in use in the middle of the hill roadway be extended from Seward place to Park place. The Schenectady Automobile Club has taken a great interest in this matter and an ordinance will probably be introduced in the Common Council at an early meeting.

State Highway Route Is Accepted by Board

Sea Girt, N. J.—The Boulevard Commission met July 28, and agreed upon a route for the State highway. It will start at Atlantic Highlands and run along the shore through Seabright, Long Branch, Elberon, Deal, Allenhurst and Asbury Park. The boulevard will cross Wesley Lake at its upper end and then follow the lake to the ocean front and return inland to the main road, returning to the ocean front through Belmar to Spring Lake and Sea Girt, to Manasquan, over the Manasquan Inlet, to Point Pleasant, Burrsville, Lakewood, Toms River, Tuckerton and New Gretna, crossing the Mullica River at Port Republic. From there the highway will touch Cologne, Egg Harbor, May's Landing, Tuckahoe, Seaville, Cape May Court House and end at Cape May Point. Three bridges will be required for the proposed modification of the present route, and until the consent of the War Department has been obtained the work cannot be started.

Plans for Abolishing Grade Crossings

Syracuse, N. Y.—A tentative financial proposition in behalf of the city has been submitted to President Brown, of the New York Central Railroad by Mayor Edward Schoeneck. If the New York Central accepts the proposal worked out by the Mayor, grade crossings will be abolished in this city without the appropriation of a dollar by Syracuse. Mr. Schoeneck's plan involves the advancing of the city's share of the cost of grade crossing abolition by the Central, the railroad to be reimbursed by valuable concessions on the part of the city in lieu of money payments. The cost of grade crossing abolition by the elevation of tracks by the West Shore route, which, it is generally believed, will be the plan adopted, has been estimated in round numbers at \$4,000,000. Under the statutes governing the abolition of grade crossings, the city's share of the cost would be one-fourth, or \$1,000,000. Mayor Schoeneck will offer to the New York Central three definite forms of reimbursement for the money advanced on behalf of the city in making the proposed grade crossing changes. He will suggest:

First—That the city will grant the New York Central a franchise for the operation of electric cars through East Washington street, such franchise to be given a fair money valuation and accepted as part payment of the city's obligation. This would permit the Central to bring the Oneida Railway in from the east by a direct and desirable route, and would be advantageous in the future development of its trolley interests.

Second—That the amount of damages to the city for the closing of streets, if such closing is necessary in the construction of the Central's new passenger station, shall be estimated and treated as a partial payment by the city to the railroad toward the cost of grade crossing abolition.

Third—That the remaining portion of the city's share shall be met by the remission to the New York Central of taxes which would accrue to Syracuse as a result of the increased taxable valuation of its property here, incidental to the construction of a new station, the elevation of its tracks and other betterments and improvements.

Paving Firms Complain

Wilkes-Barre, Pa.—Street paving contracts engaged the attention of the street committee at a lengthy session last week, and in connection with the consideration of this matter the statement was made that unless the system of paving for work of this nature is changed the city will find that outside firms will not take part in the competitive bidding. This is due to the fact that after the work is completed they are compelled to wait sixty days for their money, which it is pointed out is an injustice.

Oiling of Streets Prohibited

* York, Pa.—Mayor Jacob E. Weaver has given the police instructions to prohibit the oiling of public highways to lay the dust, the highway committee of the City Council taking the stand that there is too little difference between the oil and the dust as a nuisance.

SEWERAGE AND SANITATION

Neglect Charged in Management of Sewers

Boston, Mass.—That the pollution by sewage of the inner harbor is due to the negligence of the sewer department in not properly attending to gates and valves in dry weather is the charge made by John N. McClintock in a communication to Mayor Fitzgerald in a discussion of the situation at Moon Island. Engineer McClintock some days ago presented to the Mayor a plan for reducing the sewage nuisance, and thereby increasing the value of real estate in certain sections of the city and lessening the danger of bathing in the harbor. The communication was referred to the sewer department, and former Deputy Superintendent Pratt made a report, in which he said that no new scheme should be taken up at this time. He also denounced the idea of purification or septic action in sewage disposal. Mr. McClintock quotes the 1905 report of the State Board of Health concerning pollution of the harbor from sewers. He says that the intercepting sewers about the water front were built at great expense to free the inner harbor from contamination and storm overflows were provided to take storm water from the sewers, but that the sewer officials are responsible for the present conditions.

Co-operation in Sewerage

Malden, Mass.—Some years ago the city sold the sewer on Eastern avenue from Main street to Bryant street to the State, and got all the money, paying only its share of the cost as apportioned through the district. The facts are these: Everett has a section badly in need of sewerage, and applied for relief. It could be afforded only by running down Broadway to the Eastern avenue sewer in Malden. Malden objected through the Mayor and street and water commission, who, with the City Solicitor, City Engineer and representatives in the legislature, attended several hearings. It was finally agreed that the State should purchase the Eastern avenue sewer from Bryant street to Broadway, paying its cost, less the amount received by Malden for sewer taxes, the amount to be paid being \$29,081.01. The State Board would then build a sewer in Broadway from Eastern avenue to the Everett line, and the expense of this sewer and the purchase price of the Eastern avenue sewer would be divided between Everett and Malden, payments to extend over a term of years. The contract for the Broadway sewer was let recently for \$16,000, and Malden and Everett will each have to pay \$22,540.50, together with what interest may be charged. Malden loses whatever interest it has paid on the original cost of the Eastern avenue sewer and on the other hand the State must maintain the sewer. Malden gains in this way: It gets the Broadway sewer (which would not have been built for some years at least) for practically nothing. It would have cost the city eventually some \$16,000, for which the frontage assessments could not have exceeded \$5,000. One can readily see where Malden is the gainer, but the money received must be paid back again. Incidentally Everett is paying \$22,540.50 to secure an outlet for sewage that cannot otherwise be cared for.

City Officials Held for Maintaining Nuisance

Muskogee, Okla.—Mayor Arthur F. McGarr, eight members of the City Council, the City Engineering Department and sanitary officers of Muskogee have been arrested on warrants sworn out by Dr. W. T. Tilley, president of the State Board of Health, charging them with maintaining a nuisance south of the city, where the city maintains two septic tanks into which the city sewage is dumped.

Will Revise Sewage Plans

Rochester, N. Y.—City Engineer Edwin A. Fisher and Engineer Emil Kuichling are revising the plans for sewage disposal which were rejected by State Commissioner of Health Eugene H. Porter and will arrange for making changes in them as recommended by Mr. Porter and the three experts employed by the State Department. The city officials are not displeased with the report of the commission; in fact, the report of the State authorities practically approves the system advised by Mr. Kuichling as one which would result in the least possible pollution of the water of Lake Ontario and protect the health of those who use the water. Mr. Porter advised that provisions be made for the enlargement of the sedimentation tanks and for a division of the discharge. Both of these points have been under consideration by Mr. Fisher and Mr. Kuichling, and plans have been discussed for sedimentation tanks much larger than is required by the State. It is expected that the work of revising the plans will be completed within two weeks. It is expected that the tunnel work which will form a large part of the whole construction will be started this winter. Several separate contracts will be let. It is estimated that the plant will be in operation in two years. The estimated cost is between \$1,250,000 and \$1,500,000.

Explains Why Inspectors Should Be in Uniform.

Salt Lake City, Utah.—Dr. S. G. Paul, City Health Commissioner, wants ten uniformed sanitary inspectors at a salary of \$85 a month each. One of the strongest arguments for uniformed inspectors presented by the Health Commissioner was a little story regarding the experience of one of the three sanitary inspectors now employed by the city. This inspector wears no uniform and one night recently he went to the Salt Lake & Ogden passenger station to inspect it. A watchman saw the inspector prying around and presently the watchman locked the inspector in a lavatory and telephoned for the police. It took a half hour to make an explanation which would have been unnecessary had the inspector been in uniform.

WATER SUPPLY**Inflow of Reservoirs One-Fourth Amount Used**

Altoona, Pa.—That it will not be long until this city will face another shortage in its water supply unless it rains more during August than it did last year and the year before, was demonstrated by the conditions shown by the weiring at the two streams feeding the reservoirs at Kittanning Point, and the stage of the water in the basins. The weiring showed a flow in the Baker stream during the previous 24 hours of 555,520 gallons, while the Glen White stream had a flow of 338,856 gallons, less than a million gallons, all told. As the city consumes over four million gallons every 24 hours, this indicates that the supply in the basins will go down rapidly.

Water Turned into New 2,000,000-Gallon Reservoir

Cedar Rapids, Ia.—The Water Commissioners have ordered the water turned into the new 2,000,000-gallon reservoir that will practically double the filtering capacity of the plant, and enable the company, even under present unfavorable climatic conditions, to supply filtered water up to 6 o'clock p. m. With anything like the proper amount of rainfall the supply of filtered water would easily last for the entire twenty-four hours, a betterment that will be appreciated. The commissioners will be compelled to change the pumps to high pressure, as the consumption is so great and the drain on the capacity of the plant so constant and excessive that the low-pressure engines will not serve longer than the improvement can be installed. There are several most important matters to come up in the near future and the plant will be put on a basis better than it has ever occupied.

Regret Opposition to Municipal Waterworks

Elkton, Md.—The report received by Mayor Mitchell on samples of water taken from Elkton's supply shows that it is of a very poor quality, some very bad. Dr. Mitchell warns all users to boil the water before using it for drinking purposes. A few weeks ago the town, at a special election, decided against the Town Council being authorized to issue bonds to build municipal water works. Many who voted thus are now expressing sorrow at their action.

Dual Water System

Fort Worth, Tex.—With the installation of the dual water system the Water Commissioner has decided to offer Trinity River water for sale at 10c. per 1,000 gallons, and has already received orders from a number of large concerns. It is estimated that river water can be used for flushing purposes by various establishments and for commercial purposes by livery stables and other concerns. The scheme will be tried for thirty days, and if found satisfactory at the price will be operated indefinitely. An order has already been received for the cheaper water from the Citizens' Light & Power Company and the Missouri, Kansas & Texas Railway Company, and connection will be made with the City Hall next week and the city will retain only one hydrant of artesian water there for drinking purposes. While the water at this price comes from the river, it is filtered and freed from solids, and is as clear as the artesian water. It is expected that in this way the consumption of artesian water during the heated term will be materially decreased. The dual system was originally designed for fire protection only, but the new scheme devised by the Water Commissioner is expected to greatly enhance its value and demonstrate the wisdom of the project.

Profits of City Ownership

Kansas City, Kan.—The municipal water works system that was purchased from the Metropolitan Water Company last year cleared \$21,827 in the first eight months of operation by the city, as shown by a report sent to the City Commissioners by James A. Cable, Commissioner of Water Works. The total gross earnings from hydrant rentals from the time the city began to operate the system late in September of last year to the close of June this year were \$137,741. After paying all operating expenses, the cost of maintenance, and setting aside the interest on the bonds, there is a net profit of \$21,827.

Water and Electric Plant Burned

McPherson, Kan.—The McPherson city water works plant and electric light plant were completely destroyed by fire July 23. The fire was discovered at 9:35 o'clock and burned for two hours. On account of the water plant being afire sufficient water could not be secured to successfully combat the flames. The plant was worth \$30,000 and was insured for \$12,500. The city is in darkness and the water supply is being furnished by an engine brought in from the country. The city will be without lights until new motors can be established in the W. R. mill, which has a 250-horsepower engine with 100-horsepower to spare. The mill will furnish lights for the main street and perhaps a part of the residence district. Plans are being drawn up already for one of the largest and most completely equipped light and power plants in the State. It will be constructed of concrete and will be fireproof throughout.

Catskill Contractors Ahead of Schedules

New York, N. Y.—Water Commissioner H. S. Thompson returned to town last week from a three-days' tour of inspection of the new Catskill water system. With Chief Engineer J. Waldo Smith, of the Board of Water Supply, he viewed the tunnels and aqueduct work, and even went 600 feet underground in the Rondout tunnel. The Commissioner said he was much pleased with the progress of the work, a majority of the contractors being ahead of their schedules.

High Water Rate on Non-Residents

Wilmington, Del.—City Solicitor Brady's opinion on the application of the Town Commissioners of Elsmere for city water has caused the Board of Water Commissioners to agree to establish higher rates next year for water outside the city limits. A number of manufacturing plants outside the city now receive city water. Mr. Brady has declared that it would be illegal to supply water to another incorporated town such as Elsmere, but the department will continue to supply manufacturing plants. A copy of the opinion was ordered sent to the Elsmere Town Commissioners.

STREET LIGHTING AND POWER

Municipal Lighting Plant Favored

Baltimore, Md.—Favoring a municipal lighting plant and advocating the rejection of the bids of the Consolidated Gas, Electric Light and Power Company for furnishing the city with gas for a longer period than one year, Superintendent of Lamps and Lighting R. J. McCuen last week submitted his report to Mayor J. Barry Mahool. It was made on the proposition the company submitted in April, giving the company's terms on which it proposed to enter into a five-year contract with the city. Mr. McCuen, after reviewing the figures, makes these recommendations: "That the contract for arc and incandescent lamps, both in overhead and underground districts, be awarded for a term of one year. That in order to enjoy the benefit of the low rates, the further changing from the overhead to the underground service be suspended for a period of one year. That inasmuch as the present contract does not expire until March 1, 1911, the bids for the supply of gas be rejected."

Saginaw Appeals to State Railway Commission

Saginaw, Mich.—At the regular session of the Common Council last week steps were taken to block the sale of the Bartlett Illuminating Company to the Saginaw Power Company, and after the Council had adjourned the special committee to which was referred the matter of electric lighting rates met and, acting on the advice of City Attorney O'Keefe, voted to appeal to the State Railroad Commission for an investigation of the rates of the Bartlett Illuminating Company. Thus the campaign for an investigation of the all-important matter of getting at the bottom of the deal whereby the Bartlett Illuminating Company went over to the Saginaw Power Company has been started. City Attorney O'Keefe was instructed by the Council adopting Mayor Stewart's special message bearing on the blocking of the merger to act with such course as may be necessary to break up the combine of the interests that were effected after the special committee had started a probe into the Bartlett Illuminating Company.

Authority for High-Tension Transmission Line Given

Albany, N. Y.—The Public Service Commission has authorized the Newburgh Light, Heat and Power Company to purchase an electric lighting plant from Marion Borden Halliday, owned and operated by her in the town of Shawangunk, Ulster County. The Commission has also authorized the Newburgh Company to exercise rights and privileges granted by the Town Board and Highway Commissioners of the town of Gardiner, Ulster County, by the Board of Trustees of the village of Montgomery, Orange County, by the Superintendent of Highways and Town Board of the Town of Montgomery, Orange County, and the Town Board of the town of Shawangunk, Ulster County, for the construction and operation of an electric lighting service in these places. The company is also authorized to begin construction under these franchises and erect a transmission line, capable of carrying 33,000 volts, from Forest Glen, in the Town of Gardiner, in a southerly direction to the Town of Shawangunk, and through Shawangunk, to connect with distribution lines in that town, then southerly and east of the village of Walden and thence southwesterly to the village of Montgomery, and such other distribution lines as will enable the company to distribute and sell electricity in the territory in which it holds franchises.

Light Sign to Boom City

Phillipsburg, N. J.—A large electric sign, blazing out "Phillipsburg, N. J.," from the roof of a building, in plain view of the five railroad lines entering the town, was lighted for the first time July 29, amid cheers and applause. The committee of the Board of Trade had charge of the demonstration, which included an automobile parade, fireworks, music and speeches. The sign is constructed of letters three by six feet and 55 feet in length. It will be lighted from dusk to midnight every night.

Thinks City Should Tend Its Own Gas Lamps

St. Paul, Minn.—Assemblyman Thomas M. Kane, of the committee to investigate the gas and lighting system of the city, figures that by hiring the work done directly the sum of \$36,000 might be saved. According to the present arrangement, owing to the long routes covered by the gas-lighters and the consequent shutting off of many street lamps before the proper time, as the city pays the gas company by the hour for gas, it loses about \$8,000 a year on that item. The labor cost of lighting the lamp he figures this way: "Ten dollars a year for lighting a lamp and there are about 4,000 lamps in the city; that means \$40,000 a year. The cost of wages for the men is about \$3 a year per lamp—the rest is velvet. I want to know why the city allows a man or a concern to get away with about \$28,000 a year, and I want to know further: Why can't the city do the work itself and save this amount? The only expense that I can see that the Patterson Street Lighting Company has is in furnishing the frames and the globes, which do not belong to the city, but at the expiration of the contract must be returned to the company. So that the only real expense is the small salary paid to the men who light the lamps," said Mr. Kane.

Salina Referendum on Light Franchise Off

Salina, Kan.—The special referendum election called for August 9 to accept or reject an electric light franchise was called off, as the Council previously met and passed a new franchise for 20 years that reduces the rates, but prohibits the city's buying the plant at any time in the life of the franchise. The Council granted a franchise some time ago, but public sentiment was so strong against it that petitions were circulated and the people were to have been given a vote on it at a special election, the first in Kansas under the new referendum.

Damage by Electrolysis

Wilmington, Del.—At the last weekly meeting of the Board of Water Commissioners, Registrar McIntire showed pieces of water pipe ruined by electrolysis. It was laid at No. 3 South Harrison street in 1905, and taken up this year. In those five years damage has been done by electrolysis that would not otherwise have been done in 25 years. The question of holding the electric companies responsible for such damage has been considered by the Commissioners, but they have decided not to act until learning the result of a suit now being pressed by the City of Peoria, Ill.

FIRE AND POLICE

Two Forces of Police

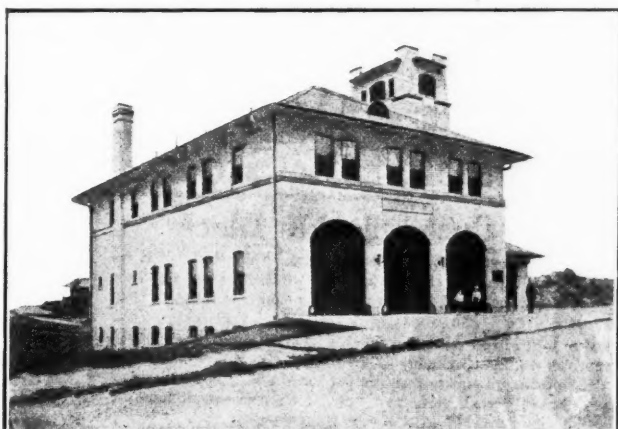
Bloomington, Ind.—Bloomington had two forces of police last week, and Judge Wilson was called from Winona Lake to decide which has legal authority. An injunction suit was filed by the City Council against Mayor Harris and his newly appointed metropolitan police board and the Council instructed the old police department to refuse to recognize the policemen named by the new board. The Mayor informed the Council that a census of Bloomington showed a population of more than 10,000, which gave him authority to appoint the police board. The Council maintains that the census was taken secretly and contains the names of Indiana university students and others who do not live in the city. Judge Wilson issued a temporary injunction against the new board's taking charge of the police department.

More Pay for Louisville Firemen

Louisville, Ky.—The City Council has before it an ordinance for making the salaries of the firemen uniform and making a slight raise all around among pipemen, drivers and laddermen. The drivers now receive \$2.50 a day, the laddermen and pipemen \$2.75 a day. It is proposed to make the wages of all the men \$3 a day, which is a figure paid in most large cities.

Seven New Fire Houses to Begin Service

Pittsburg, Pa.—Civil service examinations for fire captaincies and lieutenantcies marked the first step of the city administration to open the seven new engine houses, most of which have stood completed and idle for two years. Councilmen, demanding explanations for the continued delay in putting the new companies in service, have been given to understand the necessary appointments will be made during the early part of August. About 70 firemen will be needed to place details in the seven houses, and it will be



ONE OF PITTSBURG'S SEVEN NEW FIRE STATIONS

necessary to appoint as many new men as there are not at present enough substitutes. The fire station in Lemington avenue, near Lincoln avenue, completed about 11 months ago, is partly equipped but a truck will go into service there when the appointments are made. The other six new houses are in Brookline, Elliott, Sheraden, Aliquippa street, Scranton avenue and Hawthorne street, and Rebecca street above Penn avenue.

Fire Chief Warring on Dangerous Rubbish

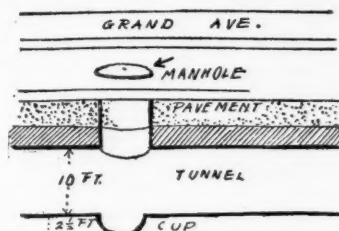
Oklahoma City, Okla.—Declaring that 135 of the 254 fires reported since January 1 were caused by carelessness, burning trash or children with matches, Fire Chief Kesler is preparing to start a crusade for the enforcement of the city ordinances relative to the disposal of paper and rubbish and the burning of trash in the fire limits. The ordinance requires that every building in the fire limits shall have a fireproof receptacle in which to collect all papers and that they shall all be hauled away at frequent intervals. It absolutely prohibits the burning of trash. In the residence districts, trash may be burned between the hours of 7 a. m. and 4 p. m., provided the fire is not within twenty feet of any building.

Firemen Stunned by Oxygen Helmet

Kansas City, Kan.—An oxygen helmet caused the death of Ward G. Mebus, a member of the Kansas City, Kan., fire department, Aug. 1. Mebus entered a burning shoe store with the helmet on, and it is believed he stumbled and fell and was stunned by the heavy helmet. In attempting his rescue Chief John McNarry was overcome, his helmet failing to work properly.

New Fire Cisterns Suggested

Kansas City, Mo.—Tunnel cisterns may be built for fire protection under the business streets. Mayor Brown sent a letter to the Fire and Water Board asking for an investigation into the construction of cisterns for fire protection. The Board has asked the counselor's office from what fund the money can be taken for the construction of these cisterns. George Hale, a member of the Board, and former Fire Chief, suggested that tunnel cisterns



be investigated. It is very probable that the Board will build some cisterns of this kind. A tunnel cistern is simply a large concrete pipe buried a few feet under the surface of the street. Being circular, the tunnel will support the street above it and no other assistance will be needed. It is easier to build than the basin cistern, and it is easier to pump water from. A tunnel 100 feet long and ten feet in diameter will hold 63,800 gallons. With a depression of a couple of feet directly under the manhole every bit of the water in the cistern can be pumped out.

Police Force Strikes Against Sunday Duty

Guttenburg, N. J.—The entire police force, with the exception of the Chief, has struck. The men object to doing duty on Sunday. The force consists of two patrolmen and half a dozen men on the extra list. Mayor Eypper is not inclined to accede to the demand for the Sunday off. He said the men offered no reason for the demand and added they must understand that "when they receive orders from Chief Steer they must obey." If they do not report for duty on next Sunday they will be suspended, he said.

New Fire Pumping Station Is Ready

Philadelphia, Pa.—After two years of preparation and construction the city's engineers have begun testing the pumps and engines of the new high-pressure pumping station at Seventh street and Lehigh avenue, the service from which, in connection with that of the high-pressure plant at Delaware avenue and Race street, is designed to give to Philadelphia and the congested industrial districts of the city the most perfect and powerful fire protection of any municipality in the world. The new station, which is officially designated the Fairhill High Pressure Fire Service Pumping Station, is said to be a model of perfection.

To Prevent Confusion at Fires

Portland, Ore.—To prevent confusion at fires Chief of Police A. M. Cox has issued a general order in which he places the patrolman on whose beat the fire occurs in charge of the men responding to the alarm until the arrival of superior officers. There has been much friction and several clashes of authority which the order is framed to prevent in the future. The order, which is addressed to the Captains, reads:

In order that there will be no future misunderstanding as to who will be in authority at fires you will instruct the men under your command to be governed as follows: The patrolman on whose beat a fire occurs will assume authority and all responsibility until he is relieved by the arrival of an officer of superior rank. Patrolmen arriving on the scene will report to the man in charge and take their instructions from him and will remain until he allows them to return to their beats. He will not cause them to remain at a fire any longer than is absolutely necessary. When a patrol wagon is sent to a fire the man in charge thereof shall immediately on arrival report to the officer in charge of the fire and remain there subject to his instructions until dismissed.

Fire Marshal for Waxahachie, Tex.

Waxahachie, Tex.—At a called meeting of the City Council last week an ordinance was adopted creating the office of Fire Marshal.

Adopts Fire Platoon System

Yonkers, N. Y.—On the first of August the five platoon system, in vogue in New York and other large cities, and for which the Yonkers patrolmen had petitioned, was instituted in the local police department. It was adopted more as a test, and if found not wanting, will continue as a permanent fixture. All the men are confident that the new system will work out well. Some even go so far as to say that it is better than the three platoon system for which there had been a lot of agitation. To a lay observer the five platoon system seems to be most complicated, but the precinct commanders and those of the men who have studied it are authority for the statement that it is no more complicated than the two platoons. Each of the three precinct captains has drawn up the schedules under which the patrolmen will work and these have been posted where they can be studied. Captain Brady, of the Second Precinct, believes the change will result in not only ameliorating the present existent conditions under which the police are working, such as being compelled, for instance, to turn out at 6 o'clock in the morning for a two-hour patrol, but will materially increase the patrol service. He argued that since the men won't have to continue on patrol for such long stretches, they will be better physically able to perform their work.

GOVERNMENT AND FINANCE

Why Boston Government Costs Are Higher

Boston, Mass.—The figures given out by the Census Bureau at Washington, according to which Boston's taxpayers pay more in proportion to population than any other city in the country, were explained by Mayor Fitzgerald as due to the higher standard set by this city, and the proportionately greater efficiency of the various municipal departments. Boston is the most expensive city, he says, because more is accomplished here in the way of civic improvement. The Mayor cited, among other instances, the City Hospital, which he considers the greatest city institution in the world, and Boston's park and municipal systems, which are not equalled in any other city.

Can Office Be Created and Filled at the Election?

Denver, Col.—The charter amendment creating the Water Commission may, it is rumored, be attacked by the Denver Union Water Company on the ground that a municipal office cannot be created and officials elected to fill it at the same election. City Attorney Harry Lindsley declared the same point was raised and gone into thoroughly at the time of the framing of the charter and that it was agreed by Attorneys C. S. Thomas, Oscar Reuter, Jacob Fillius and others as not well taken. In fact, Mr. Lindsley points out the creation of the election and civil service commissions and the election of these commissioners along with the adoption of the charter in support of his position. "If the people can create an office by amendment and fill it by a subsequent election, they can also create an office and fill it at the same election," says the City Attorney.

Mishawaka Becomes City of Fourth Class

Mishawaka, Ind.—The announcement that Mishawaka would leave the fifth class was made last week when the County Auditor notified City Clerk James L. Kennedy that the assessed valuation of Mishawaka for the year 1910 was \$5,114,000. As inquiries from local census takers resulted in the statement that the population of Mishawaka would run a few less than 12,000, probably about 100, and with the census report showing more than 10,000 and the assessed valuation of the city property over \$5,000,000, all the requirements for entering the fourth class have been obtained and all that remains is for the Government to issue an official statement of the city's population and the form of city government will be changed. With the change in class come many changes in the city government and city offices. Four new departments in the city government will be created. They are, the department of finance, department of public works, department of public safety and department of assessments and collections. The other departments will be department of law and department of health and public charities. Another addition will be a city judge, a city comptroller, a police matron and several other minor offices which will come under the new departments created.

Chickasha to Adopt Commission Form of Government

Chickasha, Okla.—The petition asking for the commission form of government has been filed with Mayor Edwards. The election will be called as soon as the details can be worked out by the City Attorney. There is but little opposition to the new form of government if the charter can be framed to meet the approval of the people.

Ocean City Now to Have a Comptroller

Ocean City, N. J.—The ordinance establishing the office of City Comptroller has been passed on third and final reading by Council.

Would Equalize Sinking Fund Payments

Passaic, N. J.—Mayor Bird W. Spencer has written a letter to the City Council recommending improvements in the management of the sinking fund as follows:

When issuing bonds for schools and other public improvements, it does not seem that our city government has taken into account the day of reckoning and maturity. A careful study of the bonded debt account of the city develops the fact that some issues mature serially while others have fixed dates of maturity, and that some are provided for by sinking funds, part at 2 per cent and part at 3 per cent. We are now raising by tax levy a sinking fund of \$14,717.50 each year, and in addition providing in the tax levy for maturing serial bonds, fluctuating during the next twenty years between an annual maximum of \$277,500 and an annual minimum of \$18,500. This extremely unequal distribution of the amount to be raised by tax does not seem business-like and would not be adopted by anyone in his own affairs. It seems to me to be our duty to provide a remedy in the interest of the taxpayers.

I would therefore recommend that an ordinance or ordinances be adopted for funding 96 2-3 per cent of the bonds maturing during the next ten years, under authority of the Funding Act of the State, and that in addition to the present sinking fund requirement of \$14,717.50 a new sinking fund be created of 3 per cent of the balance of the issue now maturing serially, which at the present time would be \$22,815, making a total annual appropriation of \$37,532.50.

After ten years, the sinking fund would be sufficient to take care of the amount falling due annually and the bonds would then be paid from the sinking fund, instead of by direct tax. The amount of the sinking fund would always be a credit lessening the city's total liability for bonds outstanding and would serve to strengthen our financial standing.

By adoption of this plan, instead of raising annually an unequal amount by tax to meet the maturing bonds, we would each year place the same amount in our tax levy, namely, \$37,532.50. New bonds issued for any purpose should be for a term of thirty years, and 3 per cent of such bonds should be added to the sinking fund annually from the time of their issue. For example, for each \$100,000 of new bonds issued for schools or other purposes, 3 per cent would be added annually from that date to the tax levy.

STREET CLEANING AND REFUSE DISPOSAL

Plan Vacuum Cleaner for Cleveland

Cleveland, O.—Public Service Director A. B. Lea and Superintendent Mundinger, of the Street Cleaning Department, have completed work on the model for a vacuum street cleaning device and the first vacuum street cleaner built after the design will be ready by August 15. "It will be a great success," said Mr. Mundinger. "By using this device we can save the city a great deal of money." Vacuum cleaners are used in a number of European cities and in eastern cities of this country, but according to Commissioner Mundinger the Cleveland street cleaner will not resemble any of them.

Health Board Criticises Manner of Handling Garbage

San Antonio, Tex.—The handling of garbage in San Antonio is as bad as ever, say the health authorities. Complaints are constantly reaching the health authorities from persons who are not pleased with the methods employed. That residents are responsible in a large measure for the scattering of paper, cans and trash, because unsuitable receptacles are furnished, is the opinion of members of the board. It is asserted that old boxes, cans, barrels and the like discardings of the back alley are used for receptacles, with the result that stray dogs and chickens scratch and scatter the contents in the street before the arrival of the garbage man.

RAPID TRANSIT

Pittsburg Mayor Revokes Street Railway Franchise

Pittsburg, Pa.—Mayor William A. Magee notified the Pittsburg Railways Company that he had signed the ordinance, passed by Councils, revoking the franchise of the Pittsburg and East Liberty Passenger Railway Company. The Mayor also ordered the transit company to cease operating cars at once on lines covered in the franchise, which embrace several downtown as well as residence district routes. The Mayor's action follows charges in the ordinance that the traction company has failed to pay the city a portion of the net profits of the company as is stipulated in the original franchise. The car company officials say this old franchise was nullified by subsequent ordinances. The proceedings are the outcome of a long-drawn-out war between the street railway company and the Mayor. It is asserted Mayor Magee will at once institute proceedings against other franchises held by the Pittsburg Railways Company.

Gasoline Street Cars for Small Towns

Pottsville, Pa.—The incorporation of the Tower City, Johnstown & Reiner City Railway Company will shortly introduce to Schuylkill County a new and up-to-date method of railroading. The road will connect Tower City with Johnstown and Reiner City and will be three miles long. The cars to be used will be of a new type, operated by gasoline motors, similar to those installed in automobiles. At present there are about 1,000 persons residing at Reiner City and about 700 at Johnstown, and it is expected that both towns will be developed rapidly within the next few years. The new road will furnish the only means of traffic between these two towns and Tower City, and the service will be such as can be established as a link to the Williams Valley and Lykens road.

Adopts Automatic Car

San Antonio, Tex.—A car which will not permit passengers to board or alight while it is in motion has been designed and is now being operated by the traction company of this city. While the conveyance is in motion neither steps nor handholds are visible, and for this reason persons can not get on or off without taking a risk that would absolve the company from all responsibility in case of accident. As soon as the car has come to a dead stop the steps and handholds fall into place, to disappear again as soon as the motorman turns on the current. The mechanism employed is entirely automatic, being governed by the car itself. The company will place many of these cars in operation as soon as possible.

Failure to Sprinkle Does Not Annul Franchise

St. Paul, Minn.—The Twin City Rapid Transit Company is not liable to forfeiture of its charter in St. Paul for not complying with the sprinkling ordinance, according to an opinion given by Corporation Attorney J. C. Michael to Mayor Keller. Mr. Michael holds, however, that the company is liable to a fine of \$50 per day in case the Supreme Court upholds the Municipal Court in contending that the sprinkling ordinance is legal. When the decision was given in Municipal Court the action was appealed to the Supreme Court. Mr. Michael's letter was in reply to inquiry made by the Mayor as to whether violation of the ordinance did not constitute grounds for forfeiture of the company's franchise.

Municipal Railroad Assured

San Francisco, Cal.—Since the visit recently made by the Mayor and other city officials over the tentatively selected route for the Geary street municipal railroad, suggestions continue to come to the Board of Supervisors in letters, outlining what the writers believe to be the most feasible and convenient trackway. None of the bonds bid for and sold has been issued, and the second authorization is all taken by advance subscriptions. The amount bid for, of the original issue, was \$139,000, leaving \$101,000 to be otherwise disposed of. These were sold over the counter at the office of the Clerk of Supervisors and were oversubscribed almost \$125,000. The latter sum, added to the subscriptions recently received, practically takes up the entire second issue that was authorized at the last meeting of the Supervisors.

MISCELLANEOUS

Municipal Abattoir a Reality

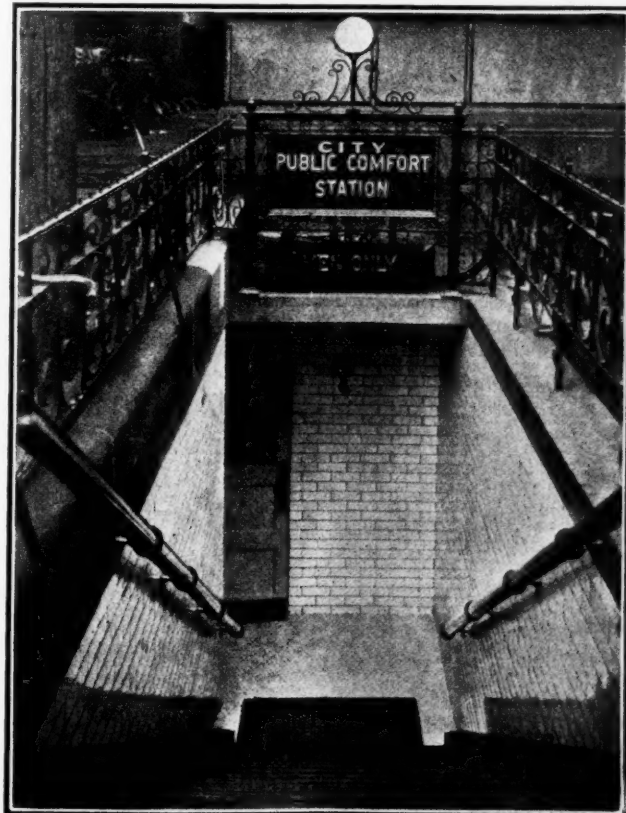
Asheville, N. C.—The abattoir for the establishment of which the City Health Board has worked for several years is about to become a reality. The building now being constructed by Messrs. Sternberg and Zimmerman, of the Asheville Packing Company, at their plant near Murphy Junction, will be ready for reception of animals and their slaughter under the abattoir ordinance adopted some time ago by the Board of Aldermen early in August. There will be rigid inspection of all meats slaughtered here for sale in the city. The animals are to be inspected before slaughter and the carcass afterwards, including the vital parts, and in that way any diseased meats will be immediately detected.

Abattoir of Two Cities

Bristol, Va.—Charles F. Gauthier, former Mayor, is taking steps to begin at once the erection of a modern abattoir of large proportions, in which is to be slaughtered all cattle and hogs that are consumed in the city. In accordance with ordinances adopted by the two municipalities, Bristol, Tenn., and Bristol, Va., all stock to be slaughtered for home consumption will have to be slaughtered there, and an inspector representing both municipalities will inspect all hogs and cattle submitted for slaughter to determine whether or not they are diseased.

No Fees or Tips at Denver Comfort Stations

Denver, Col.—The attendance at the Sixteenth street public comfort station now averages over 3,000 persons daily. The recent improvements at the station have made it one of the neatest and most convenient places of the kind to be found anywhere. The station is open from 6 a. m. until midnight, and no charge whatever is made for any of the conveniences offered, which include the use of the wash room with soap and clean towels. There is a boot-black stand in the corridor conducted by the attendant, who charges the regular fee for shines. No other fees or tips are permitted by the city. In London and several of the European cities which have had comfort stations in operation for many years, the system of charging fees for certain conveniences is still in vogue. Penny and nickel-in-the-slot machines are used in some cities.



ENTRANCE TO DENVER UNDERGROUND PUBLIC COMFORT STATION

Los Angeles Outgrows Its Improvement Plan

Los Angeles, Cal.—Los Angeles has outgrown its city plan which was presented to the City Council on December 3, 1907, by Charles Mulford Robinson, of Rochester, N. Y., with the expectation that it would provide for all future expansion. The plan was completed before Los Angeles reached out and embraced its great harbor district on the south, and Hollywood, Colegrove and contiguous territory on the west. The result is that there is a large and important section of the city which is not provided for in the plan. To make place for these sections Councilman Miles S. Gregory introduced in the City Council a resolution providing for the appointment by the Mayor of a committee to take steps toward the preparation of a comprehensive and practical city plan. The resolution, which was referred to the Public Welfare Committee for a report, is as follows:

Whereas, In transmitting his report on the improvement of the city of Los Angeles to the City Council, on December 3, 1907, Charles Mulford Robinson said that while he had worked day and night, yet he had taken up only main centers and lines of development and that a more comprehensive study ought to be made, and urged that such a study be authorized, in preparation for a greater and more beautiful Los Angeles; and

Whereas, Since Mr. Robinson's report was filed and his plans were approved by the City Council, much additional territory has been added to the city by annexation; now, therefore, be it

Resolved, That the Mayor be requested to appoint a committee for the purpose of directing the preparation of a comprehensive and practical city plan for Los Angeles, with a view to its final official adoption, so that improvements thereafter proposed for public and private property may conform thereto, as nearly as may be, and that thereby the artistic development of the city may progress along with its remarkable material advance.

New Moth Pest Invades Medford

Medford, Mass.—A new moth pest which has appeared in Medford seems destined, unless some new means are found to combat it, to do more damage to American forests than any of the moths that have preceded it. The moths were discovered two years ago on a private estate near Middlesex Fells. Since then they have spread to the reservation. The caterpillar in question is from one-eighth to three-sixteenth of an inch long, a little flat, translucent creature of a yellowish green, or darker color, that eats its way between the upper and under epidermis, or skin, of the leaf. What he devours is the parenchyma, or soft pulp, of the leaf. Whenever he works his traces are visible in the rapidly spreading brown spots on the green leaf, which gradually curls up as the life is sucked or eaten out of it. As many as 100 of these tiny caterpillars have been counted in a single oak leaf. As the worm is inside of the leaf it can readily be appreciated by the arsenate of lead that is sprayed on the outside of the leaves apparently has no effect on him. This fact also explains his impregnable position so far as the birds and various other parasites are concerned. The insect is a "miner" and works all the time below the surface.

Cost of Maintaining City Playgrounds

Holyoke, Mass.—The playground season is nearly half completed and the Commission is now in a position to learn what the cost of maintenance will be. Chairman W. J. Howes, of the Commission, says that the average daily attendance on the grounds is 1,350 children. The expenses of the grounds averaged on the basis of 500, the largest average attendance on a single ground, brings the cost of the playgrounds at but 10½ cents a week for each child. Figured on the basis of the smallest average attendance of 350, the cost is only 16½ cents a week per child.

Mayor Puts His Veto on "Tag Day" Methods

New York, N. Y.—Mayor William J. Gaynor does not approve of "tag day" methods for raising funds for even charitable purposes. In a letter read at a meeting of the Board of Aldermen the Mayor says:

This resolution would authorize the ladies of the Day Nursery in the Borough of Richmond to accost people in that borough for the purpose of extracting coin and other moneys from every possible citizen on the occasion of Tag Day. Such an authorization is of doubtful legality and of more than doubtful propriety. The collection of money on tag days is usually made a success by the aid of small children—a practice which should not be permitted.

Municipal Farm All Right

Kansas City, Mo.—Kansas City has just finished its first year's experience with a municipal farm, a project which was undertaken for the improvement it promised over an expensive workhouse. The results, as summarized in the first annual report to the Board of Public Welfare, are interesting. A prisoner in the workhouse used to cost the city \$220 a year; a prisoner on the farm has been earning \$100 for the city. These figures, which are given as averages, show that the city has turned a loss of sixty cents a day for each prisoner into a gain of thirty cents for each prisoner. But that is not all, for the reformatory influence of the farm is marked. It is noted that the prisoners take an interest in the farm work that they did not take in the workhouse tasks, that few guards are necessary, for attempts to escape are infrequent. They plant and cultivate and harvest crops, care for live stock, build roads and fences and repair them, in all of which there is a variety of work with something suited to every ability. The city sells the products of the farm which are not needed for the living of prisoners.

230 Streets in Brooklyn Are Grassgrown

New York, N. Y.—Brooklyn has a unique public official in its "Commissioner of Weeds," who draws a regular salary of generous size for making note of all suburban streets where the weeds need attention. The Commissioner completed his first three months in office last week, presenting a report which showed that in 230 Brooklyn streets the weeds were offensively in evidence.

Electricity for Smoke Prevention

Omaha, Neb.—A new scheme for consuming smoke, doing away with a carbon-laden atmosphere, has attracted the attention of Omaha councilmen and an agitation has been begun to do something for Omaha's smoke troubles. A clipping from a San Francisco paper, reporting a speech delivered before the American Chemical Association by F. G. Cottrell on smoke consumers, was sent to G. F. Brucker, Acting Mayor, and he became interested enough to bring the matter before some of the colleagues, and will ask City Electrician Michaelson to investigate the practicability of the scheme. Cottrell's device is to run a direct current through the smoke. The electricity causes the smoke to precipitate itself in carbon deposits on the sides of the chimney and does not pass out into the atmosphere at all. Several schemes of similar nature have been tried in cities before, and have been only indifferently successful, but the chemists who advocate this latest method say that all smoke troubles can be done away with, without difficulty. It is expensive, however, and that will probably be the greatest argument against it with manufacturers.

Scales and Measures Disposed of as Junk

Washington, D. C.—Covering work done by his Department within the past nine months, W. C. Haskell, Superintendent of Weights, Measures and Markets, reported to the Commissioners that a total of 3,000 pounds of condemned scales, measures and weights had been seized and turned over to the property clerk of the District of Columbia, to be sold as junk. All of the implements of measure, including scales that had been found defective, and buckets, tubs and boxes which were found to contain less wet or dry goods than the standards, were taken into the District property yard and demolished beyond all hope of further usefulness. The weights were taken to a foundry and in the presence of an assistant of the sealer's office were thrown into a furnace and melted. The District profited by the seizures of short weights to the extent of the value of the junk. In commenting on the work of his office for the period in question Col. Haskell said:

We are constantly endeavoring to prevent the sale of merchandise of all sorts by short weight, but we find it necessary each year to condemn and seize a great number of scales and measuring devices. Many of the dealers were found this year to be using defective standards through carelessness and in such cases the only punishment consisted in the seizure of these articles. Approximately 40 per cent of the condemnations resulted from investigations which showed dealers to be using short weights with a deliberate intent to defraud. In such cases our men not only seized the defective instruments, but also instituted prosecutions in the Police Court. Many of the dishonest merchants were forced to pay heavy fines.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Nuisance—Street Railway

McKay v. City of Enid et al.—An action cannot be maintained by a private person for an interference with or an obstruction in a public highway constituting a public nuisance, unless he is thereby specially injured in some way not common to the public at large. Plaintiff is the owner of a quarter section of land cornering with an addition to a city. Where the land corners with said addition, two public highways, adjacent to his land intersect. At this point three streets, leading across the addition from the city, end in said public highways. A railway company, under legislative authority from the municipal corporation was alleged to have constructed and operated lines of railway and switch tracks upon and across all of said streets, and upon two of them in such a manner as to obstruct greatly public travel over same. Held, that in the absence of averment in the petition showing that the streets obstructed were plaintiff's only means of access to his property which did not abut upon said streets, his petition failed to state sufficient facts to show that he had suffered an injury special to himself and different in kind from that suffered by the general public, and a demurrer to his petition for that reason was rightfully sustained.—Supreme Court of Oklahoma, 109 P. R., 820.

Draining and Filling Low Lands

Bowes et ux. v. City of Aberdeen et al.—Where low land covering approximately 1,000 lots, with adjoining streets, located partly within and partly adjacent to the business portion of a city, where permanent streets are necessary, and where undrained land will jeopardize the health and retard the growth of the city, the filling in of the low land to insure perfect drainage and the absence of stagnant water is within the police power, and the city may, as authorized by Laws 1909, make the improvement, on it appearing that the improvement is not disproportionate to the danger, and provided the exercise of the power is not unjust or arbitrary.—Supreme Court of Washington, 109 P. R., 369.

Referendum Petition—Withdrawal of Names

State ex rel. Mohr v. City of Seattle et al.—Under a provision of a city charter that the referendum may be invoked by petition bearing the signature of a required percentage of the qualified voters, and requiring the City Comptroller to verify the sufficiency of signatures to the petition, and transmit it to the City Council, who shall thereupon provide for submitting the ordinance to the vote of the qualified electors, the names of signers of a petition for a referendum can be withdrawn only before the report of the Comptroller to the City Council. A petitioner for referendum under a city charter has sufficient interest to maintain a suit to enjoin the city from acting under an ordinance without submitting it to the people in accordance with referendum proceedings.—Supreme Court of Washington, 109 P. R., 308.

Eminent Domain—Compensation

State ex rel. Stalling et ux. v. City of Aberdeen et al.—Under Laws 1909, authorizing a city to fill swamp lands within its limits and providing for the acquisition under the power of eminent domain of private property necessary in making the improvements, the damages assessed in a proceeding by the city to condemn improvements on land to be filled must be paid by the city before the property can be taken or damaged.—Supreme Court of Washington, 109 P. R., 379.

Creation, Alteration and Dissolution of Municipal Corporations

Allen v. Board of Trustees of City of Bakersfield et al.—Creation, alteration and dissolution of municipal or other subordinate public corporations is a matter entirely in the control of the Legislature, subject to constitutional restrictions on special legislation.—Supreme Court of California, 109 P. R., 486.

Street Improvement—Appointment of Appraisers

City of Huntington v. Bucher.—Under Acts 1905, relating to the assessment of property for street improvements, and providing that the owner may appear before the Board of Public Works and be heard, and that after the hearing the Board shall sustain or modify the prima facie assessment by confirming it as to any or all of said lots according to the benefit received, appearance before the board is necessary before one challenging the assessment roll is entitled to have appraisers appointed on petition to the Circuit or Superior Court. Where one was under the statute entitled to an appraisal of property for purposes of assessment for street improvements, it was the duty of the court, on failure of the appraisers to act, to appoint new appraisers.—Appellate Court of Indiana, 92 N. E. R., 124.

Sale of Adulterated Milk—Burden of Proof

City of New Orleans v. Villere. In re Villere.—In a prosecution for having in possession for sale adulterated milk, the burden is on the prosecution to prove possession for the purpose of sale to consumers in the customary manner of the trade. The mere receipt by a dairy company at a railroad depot of one or two cans of milk below the legal standard out of a shipment of 26 cans does not make out a case of "possession for sale" within the purview of the city ordinance, especially where the evidence shows that the dairy company does not sell to consumers milk below the legal standard, but uses the same for the manufacture of butter, cheese, and other by-products.—Supreme Court of Louisiana, 52 S. R., 682.

Defective Sidewalk—Liability for Injuries

Frost v. Village of Port Chester.—Defendant city, whose charter authorized it to require abutting owners to lay sidewalks in front of their premises according to a fixed grade, was not liable for injuries to one who at night, owing to the absence of barriers or lights, stumbled over a pile of dirt brought by the lot owner's contractor for filling, and fell on some flagstones deposited in accordance with defendant's direction to the owner to lay the walk.—Supreme Court New York, 123 N. Y. S., 768.

Police Officers—Removal

Sanders v. Town Council of Warren.—Public Laws 1905 provides for a police force of the town of Warren, and declares that any police officer shall be subject to removal by the Council for such mistake or incapacity as the Council may deem a disqualification for the office, and that all removals shall be by the Council on charges made in writing, and of which the officer complained of shall have notice and an opportunity to be heard. Held, that charges filed against the chief of police of the town, reciting that he had shown such incapacity in carrying on the business as to disqualify him, without stating in what the incapacity consisted, was fatally defective.—Supreme Court of Rhode Island, 76 A. R., 273.

Passage of Ordinance—Parol Evidence

Cook v. Borough of Manasquan.—The minutes of a Borough Council kept by the Clerk thereof showed that an ordinance, authorizing proceedings to condemn land for a public street, on its final passage "was carried on roll call" on certiorari prosecuted by a landowner affected. Held, (a) That the record as it stands is not sufficient to show that it received the vote of the majority of the whole Council. (b) That there was no legal presumption, as against the landowner in a proceeding to condemn, that the ordinance received the requisite number of votes. (c) That the record cannot be enlarged or omissions supplied by parol, where such omissions are of jurisdictional facts.—Supreme Court of New Jersey, 76 A. R., 310.

Unauthorized Acts of Officers

Moss et al. v. City of Pittsburg.—The City of Pittsburg, which, under the law of Pennsylvania governing cities of the second class, can make no contract, except in writing, executed as required by the act, and signed by the Mayor and the head of the proper department, cannot be deprived of a vested title in real estate by the unauthorized acts of individual officers or employees in permitting a use of the land in violation of a condition subsequent annexed to the grant.—Circuit Court, W. D. Pennsylvania.

NEWS OF THE SOCIETIES

Texas Mayors' Association—The tenth annual convention of the Texas Mayors' Association convened in Tyler July 28 with a number of Mayors from all parts of the state in attendance. The county court room in the new Court House was used for the sessions. The convention was assembled for business with President W. D. Davis, Mayor of Forth Worth, in the chair. The invocation was delivered by Rev. N. Harris, pastor of Marvin Methodist Church. The address of welcome in behalf of the City of Tyler and citizens was delivered by City Attorney John S. McIlwaine and was responded to by F. H. Heffner, Mayor of Marlin, who grew to manhood in Tyler and who said he was glad to be back in Tyler, the city where he cast his first vote which helped to elect the first Democratic President of the United States since the war. At 10.30 Mayor Davis rose to deliver the President's annual message, which was an able talk on the problems which confront the head of a city government. Mayor Davis spoke for nearly an hour and discussed every feature of city government. Proper handling of public charity, the moral uplifting of the city, beautifying the city and necessary fellowship and good will between the city officers and citizens were the important features which were fully discussed. The afternoon session was given over to detail matters of the convention and talks among the mayors on topics of general interest. In the evening they were driven out to Bellwood Lake, where this city secures its supply of water. There was also a lecture by H. D. Hemingway, a noted landscape artist, on civic improvement and landscape beauty. After the lecture the visitors were entertained at the club rooms of the Elks. At the second day's session Commissioner Grant of Fort Worth spoke on "The City Beautiful," treating in detail the creation, care and upkeep of parks. He said that parks not only contributed to the beauty of a town; they were aids in giving health and pleasure to the people, and were business assets in enhancing the values of property. At the request of many of the delegates Mayor Davis of Fort Worth made a talk on "The Commission Form of Government." He treated the subject exhaustively and the convention accorded him the closest attention. He showed that under the aldermanic form the city's interests were given but a small amount of time and for which the officials received insignificant pay, while under the commission form a few men gave their whole time to the city's work and received the adequate pay business men always command; that it was real economy to concentrate the city's business in the hands of a few competent agents, give them reasonable salaries and require their whole time and work. All of the Commissioners conferred daily on municipal problems, but each man was assigned a specific department and was held strictly responsible for every detail in his line. In answer to questions Mayor Davis told of the procedure in obtaining a commission form charter. The election of officers for the ensuing year then took place. On motion of Mayor Bonner of Tyler Mayor W. D. Davis of Forth Worth was by acclamation re-elected president of the association for another term. Mayor Henthorn of Loraine was elected first vice-president, and Mayor Hassell of San Angelo was elected second vice-

president. The post of Secretary and Treasurer for the next twelve months went to Dr. R. H. Greer, former Mayor of Arlington. The new executive committee is as follows: Mayors Davis, McClure, Bonner, Bennett, Henthorn, Hassell, Greer and Heffner. The next convention of the Mayors will be held in Marlin, that city receiving practically the unanimous vote of the convention. The convention then adjourned until 1911. In the afternoon the Mayors and their families were entertained by citizens in their homes and at Greenbriar and Lake Park, and at 5 o'clock were taken for an automobile ride over the city. A Dutch luncheon at the Elks' club rooms was tendered at night. Mayor John H. Bonner was the toastmaster and the following were the toasts: "Our Guests," Col. John Tom Bonner; "Parks and What They Mean," A. W. Grant of Fort Worth; "The Queen of the West," Mayor Hassell; "Co-operation of Mayors and Commissioners' Courts," Judge J. A. Bulloch of Marlin; "Nature's Health Resort," Mayor Heffner; "Where the Panther Laid Down," Mayor Davis; "Possibilities of a West Texas Town," Mayor Henthorn; "Texas, a Leader in Civic Improvement," Col. Hampson Gary.

International Road Congress—The opening session of the second International Road Congress, Brussels, Aug. 1, at which experts from all the European countries, the United States and Mexico, gathered to exchange views on the construction and maintenance of roads, met at the Palace of Academies. Colonel Spencer Cosby, Superintendent of Public Buildings and Grounds at Washington, is chairman of the American delegation, which consists of Nelson P. Lewis, chief engineer of the Board of Estimate of New York; Harold Parker, chairman of the Massachusetts Highway Commission; Asa Paine, Howard Sutherland, General Aleshire, Quartermaster General, United States Army; Clifford Richardson, Major W. H. Wiley, of New Jersey, and Joseph W. Jones of New York. L. W. Page, Director of Public Roads from the Department of Agriculture, who was to have headed the delegation, was unable to be present. The sessions of the congress will be devoted largely to the consideration of reports submitted by the delegates upon various phases of road building, including the results of rolling on ballasted and paved thoroughfares, the struggle against wear and tear, foundation and draining of roadbeds, cleaning and sprinkling, choice of coating, the influence of weight and speed of vehicles and methods of clearing away snow and ice. The results of methods devised at the Congress last year at Paris, particularly road signals, will also be considered. J. E. Pennybacker, Jr., Chief of Road Management in the Department of Agriculture, will submit a special report to the Congress. W. W. Crosby, of the Maryland Geological Survey; A. B. Fletcher, of the Massachusetts Highway Commission; Percy Hooker, of New York, and Harold Parker, of Massachusetts, co-operated in preparing the report on "Ballasted and Paved Roads"; Pierce Vernon, of the Department of Agriculture, and J. R. Rablin, of the Metropolitan Park Commission, on "The Choice of Coating and Foundation for Roadbeds," and Prevost Hubbard and Charles W. Ross, Street Commissioner of Newton, Mass., on "Materials for Construction and Upkeep of Roads." A daily newspaper will be a feature of the Congress.

Oregon Mayors' Association—Mayor E. E. Straw, of Marshfield, has invited the heads of all of the cities of Oregon to visit Coos Bay August 15 for the purpose of organizing a State Society of Mayors. L. J. Simpson, Mayor of North Bend, has joined Mayor Straw in the movement for the organization. The purpose is to bring the Mayors of the different cities closer together for their mutual benefit. A carnival will be held on Coos Bay the same week and the visitors will be the official guests of the city.

Northern Indiana Good Roads Association—The second annual convention was held at Elkhart July 30, in the Chautauqua auditorium at McNaughton Park. H. O. Edridge, Bureau of Roads, United States Department of Agriculture, was one of the principal speakers. J. C. Crabill, of Indianapolis, was present and read a bill proposed for the next state legislature, which provides for aid to be given by the state and the appointment of supervisors and engineers. Senator Proctor and Representative W. E. Wider made addresses in which both promised support of the bill if it were presented to them for consideration. The meeting was not very well attended, there being a tendency on the part of some to look on the movement as an action of automobilists to improve conditions for that class of travel, without considering the desires of the rural districts. Three cities were represented by their mayors, Lemuel Darrow, of Laporte, Mayor A. G. Schleiker, of East Chicago, and Mayor E. M. Chester, of Elkhart, being present. In opening the afternoon session Mayor Darrow made an address in which he outlined the need for such an association and the objects of the one now organized. He declared that thousands of dollars were spent annually on roads by supervisors who left them worse than they were before the alleged improvement, and he was especially severe on the road grader. He declared that the notion that the object in making the roads better was to please the automobile owners was quite erroneous, and showed how much good roads would mean to the farmer, and how the absence of first class highways impeded the farmers' prosperity. He asserted that investigation had revealed to him that Elkhart and St. Joseph counties had most excellent material for road making right along the St. Joseph River, but that Laporte county had no native material, and had to go over to St. Joseph county or into Michigan. He showed, however, that Laporte county had built 210 miles of stone road, and was pleased with the results. The articles of incorporation, which had been drafted by a special committee, set forth that the name of the association shall be the Northern Indiana Good Roads Association; that its objects shall be the arousing of public sentiment to the necessity of good roads and public highways, through the promotion and encouragement of all legal means to accomplish the end, the creation of subsidiary organizations, whose objects are similar to this one, and in securing of necessary legislation in favor of good roads. The management and control of the affairs and funds of the association shall be vested in a board of directors consisting of one from each of the counties that have been heard from expressing a desire to enter the association, to be elected by members of the association and to hold office one year from election. The association shall not be conducted for pecuniary profit.

North Carolina Firemen's Association—Exciting contests marked the session of the North Carolina Firemen's Association at New Bern, N. C., July 28. In the hose wagon races, 200 yards distance, Asheville No. 2, won first prize, \$100, with Asheville No. 1 second. The time, 30 1/5 seconds, is a record. The hand reel race over a distance of 150 yards, was won by Salisbury South Side, with Salem Company second. The grab reel race over 100 yards was won by Salem, with Salisbury South Side a close second; both teams in this event broke the record, which had been 17 3/5 seconds for the distance. In the evening a historical parade, a water carnival and a display of fireworks, both on land and water, brought the program to a close.

Nebraska State Firemen's Association—At the tournament at York July 26 nine hose teams and two hook and ladder companies took part in the program. The town was gaily decorated, more than 5,000 pennants and streamers being displayed from the public and business buildings.

Good Roads Club of Tazewell, Va.—A good roads club has been organized by the election of Irving Lawson, of Burkes Garden, as president, and Dr. R. P. Copenhaven as secretary. William G. P. Worth in an address said the county could afford to issue \$500,000 bonds.

Washington State Association of Health Officers—State Health Commissioner Dr. Elmer E. Heg has called a conference of all the health officers of the state to take place some time in September. The conference is called because the State Commissioner feels at this time there are many problems of state wide interest to come up before the health officials. It is further expressed that it would be a distinct loss to both the officers and the state at large if they did not gather this year and discuss problems of mutual interest and criticize the methods of carrying on health work. A State Association of Health Officers was formed in 1908, but through lack of interest it died a natural death, and one of the objects of the proposed gathering is to, if possible, resurrect the old association and put new life into it.

Indiana Electric Light Association—The second annual meeting of the Indiana Electric Light Association will be held at the Denison Hotel, Indianapolis, Ind., August 17 and 18. The program will include the following addresses:

Wednesday, August 17—"Relation of Central Lighting Stations to Supply Houses," Gordon E. Varney, Indianapolis; "Commercial Value of Low Head Water Power," F. A. Bryan, South Bend; "Relation of Purdue University to Electric Public Service Corporations in Indiana," Professor C. Francis Harding, Purdue; "The Cost of Light," Engineering Department, National Electric Light Association; "Ornamental Street Lighting," E. Darrow, Indianapolis; "Municipal Ownership in Indiana," R. A. McGregor, Connersville.

Thursday, August 18—"Methods of Introducing Current Consuming Devices," J. K. McDonough, General Electric Company; address, Charles A. Bookwalter, Indianapolis; "New Developments in Heating Devices," W. F. Hadaway, Westinghouse Electric and Manufacturing Company; "State Supervision of Public Utilities," Thomas C. McReynolds, Kokomo; "Feeder and Generator Regulators," F. W. Shackelford, General Electric Company; "Steam Heating Construction," G. M. Williams, Indianapolis.

Arrangements have been made to take the members on a trip of inspection of the various electric and water plants in the city. The officers of the association are as follows: C. C. Perry, president, Indianapolis; G. E. Varney, vice-president, Danville; J. V. Zartman, secretary-treasurer, Indianapolis.

Calendar of Meetings

- August 8-13. Western Pennsylvania Volunteer Firemen's Association.—Convention, Carnegie, Pa.
- August 10-11. Vermont State Firemen's Association.—Convention and Tournament, Burlington, Vt.—E. D. Moore, Secretary, Bennington.
- August 10-12. Upper Peninsula Firemen's Association.—Annual Tournament, Sault Ste. Marie, Mich.
- August 16-18. Wisconsin Paid Firemen's Association.—Annual Convention, La Crosse, Wis.
- August 16-19. Firemen's Association of the State of New York.—Thirty-eighth Annual Convention, Watertown, N. Y.—Thomas Horahan, Secretary, Frankfort, N. Y.
- August 17-20. National Firemen's Association.—Thirteenth Annual Convention, Rochester, N. Y. Bert Fisher, Secretary, 3812 Wabash ave., Chicago, Ill.
- August 22. New York State Fire Chiefs' Association.—Meeting and Banquet, Syracuse, N. Y.
- August 23-25. League of Third-Class Cities of Pennsylvania.—Annual Convention, York, Pa.—Mayor Jacob E. Weaver, President, York, Pa.
- August 23-26. League of American Municipalities.—Annual Convention, St. Paul, Minn.—John MacVicar, Secretary, City Hall, Des Moines, Ia.
- August 23-26. International Association of Fire Engineers.—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.
- August 24-26. Virginia State Firemen's Convention.—Alexandria, Va.—G. C. Cummings, Secretary, Portsmouth, Va.
- September 5. Greene County Firemen's Association.—Twenty-second Annual Convention, Tannersville, N. Y.
- September 5. Rhode Island State Firemen's League.—Annual Muster, Manville, R. I.
- September 5-9. American Public Health Association.—Annual Meeting, Milwaukee, Wis.—W. C. Woodward, Secretary, Washington, D. C.
- September 6-8. Association of Edison Illuminating Companies.—Annual Meeting, Thousand Islands, N. Y.—Walter Neumuller, Assistant Secretary, 55 Duane St., New York, N. Y.
- September 6-9. Pacific Coast Association of Fire Chiefs.—Eighteenth Annual Convention, Stockton, Cal.—A. A. Sumner, Secretary, Anacortes, Wash.
- September 6-9. International Association of Municipal Electricians.—Fifteenth Annual Convention, Convention Hall, Rochester, N. Y.—Frank P. Foster, Secretary, Corning, N. Y.
- September 8-12. Michigan Gas Association.—Annual Meeting on Steamer sailing from Detroit, Mich.—Glenn R. Chamberlain, Secretary, Grand Rapids Gas Light Co., Grand Rapids, Mich.
- September 14-16. League of Michigan Municipalities.—Annual Convention, Lansing, Mich.
- September 20-22. Central States Water Works Association.—Convention, Indianapolis, Ind.
- September 21-23. Colorado Electric Light, Power and Railway Association.—Annual Convention, Colorado Springs, Col.—J. C. Lawler, Secretary, P. O. Box 938, Colorado Springs, Col.
- September 21-23. New England Water Works Association.—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.
- September 21-23. Massachusetts State Firemen's Association.—Thirty-first Annual Convention, Lowell, Mass.
- September 26-30. National Irrigation Congress.—Annual Meeting, Pueblo, Col.—Arthur Hooker, Secretary, Pueblo, Col.
- October 10-11. Massachusetts Police Association.—Annual Convention, Holyoke, Mass.
- October 10-14. American Street and Interurban Railway Association.—Annual Convention, Niagara Falls, Ontario.—H. C. Donecker, Secretary, 29 West 39th St., New York, N. Y.

PERSONALS

BYRNE, JOHN, Grand Rapids, Mich., has been appointed Sealer of Weights and Measures; he was formerly a police officer.

GESSNER, G. A., Jr., has been appointed resident engineer for the new concrete arch bridge over the Maumee River, Toledo, Ohio.

GRANT, U. S., Chief of the Fire Department of Evansville, Ind., has been presented with a diamond studded badge by Col. F. B. Posey, on behalf of his many friends, and Assistant Chief C. S. Wilder was equally honored, the presentations being witnessed by the Captain of every fire crew in the city.

GREIFENHAGEN, F. O., Architectural Engineer for the Department of Buildings, Chicago, Ill., has been transferred to the newly established efficiency division of the city Civil Service Commission, to undertake special investigations in connection with the engineering branches of the service.

HEMTY, W. A., Assistant City Engineer, Kansas City, Mo., has resigned to engage in the manufacturing business at Saginaw, Mich.

JORDAN, THOMAS H., is Acting Mayor of Lawrence, Mass.

LAUMEISTER, CHARLES, San Francisco, Cal., has been named as President of the Board of Fire Commissioners by Mayor P. J. McCarthy, succeeding Joseph R. Sullivan, transferred to the Police Board; he was formerly Sheriff of the city and county, and member of the State Board of Railroad Commissioners.

MCGAULEY, RICHARD, Muncie, Ind., has been named as a member of the Board of Police Commissioners by Mayor Edward Tuhey, succeeding Milton Rutherford, who becomes a member of the School Board.

MATHEWS, W. M., member of the Police Department of Tampa, Fla., has been named and confirmed as Fire Chief, relieving Assistant Chief John Holton, who has been Acting Chief since the death of Chief A. J. Harris, several weeks ago; Chief Mathews was formerly head of the Volunteer Fire Department of Orlando, Fla.

SMITHSON, J. N., Bessemer, Ala., has been nominated for Mayor at the primary.

STRAUSS, H. A., Chicago, Ill., Vice-President and Chief Engineer of the Falkenau Electrical Construction Company, has been appointed consulting Engineer by the Davis & Weber Counties Canal Company, of Utah, to undertake the design of the hydro-electric development of the Davis and Weber Counties Canal.

SULLIVAN, JOSEPH F., President of the Board of Fire Commissioners of San Francisco, Cal., has been named by Mayor P. J. McCarthy as a member of the Board of Police Commissioners, vice Harry P. Flannery, resigned, and has relinquished his position on the Fire Board.

SHERIDAN, JOHN C., Chief Engineer of the Bureau of Highways, Borough of Brooklyn, N. Y., has tendered his resignation to become effective September 1. Mr. Sheridan, after retirement from municipal service, will become chief engineer for the Cranford Company, of Brooklyn.

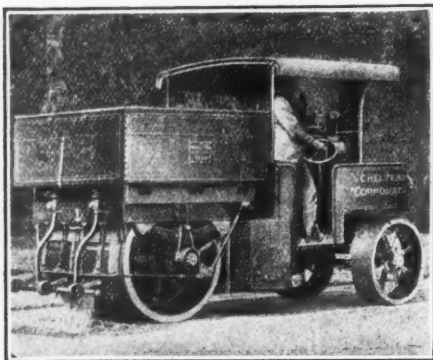
TAYLOR, W. S., Chief of Police of Chester, S. C., for eleven years, has resigned in order to become half-owner of the High Point Detective Agency, at Columbia.

WORTHY, A. K., Mayor of Mount Olive, Miss., has been reelected over M. M. Evans, who previously held the office.

MUNICIPAL APPLIANCES

Combination Roller Sprinkler and Wagon

A COMBINATION steam roller, sprinkler and wagon combined is made by Mann's Patent Steam Cart and Wagon Co., Ltd., Leeds, England, for use in patching ordinary and tar macadam. The body is mounted on springs to permit quick traveling from one job to another without noise or vibration. The

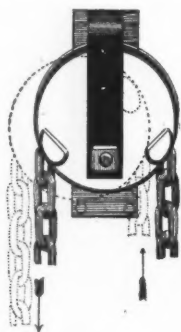


ROAD ROLLER, SPRINKLER AND WAGON COMBINED

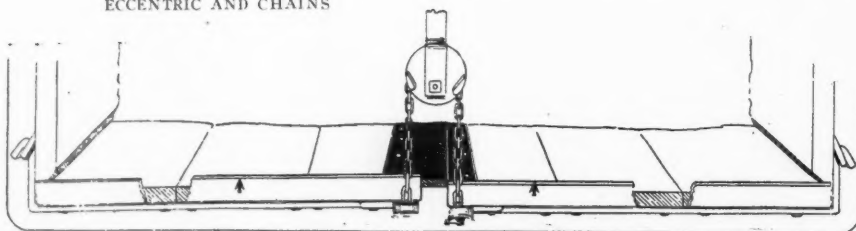
watering tank can be replaced with an interchangeable tipping body for carrying road metal, forming a combined roller and tipping cart, without changing road wheels, or it can be used to haul a cart as a trailer, the power being sufficient.

Eagle Bottom Dump Wagon

A BOTTOM dump wagon of one and a half and two yards capacity has been manufactured by the Eagle Wagon Works, Auburn, N. Y., for about 10 years. The wagon as now made is claimed to be exceptionally strong as the result of these years of experience. The rear axles are made in two styles, open as is generally used, which gives a good opening at the rear to get away from the dumped load, and bedded axle sometimes preferred. In both cases $2\frac{1}{4}$ Sheldon axles are used. The body of the wagon has a hardwood side.



ECCENTRIC AND CHAINS



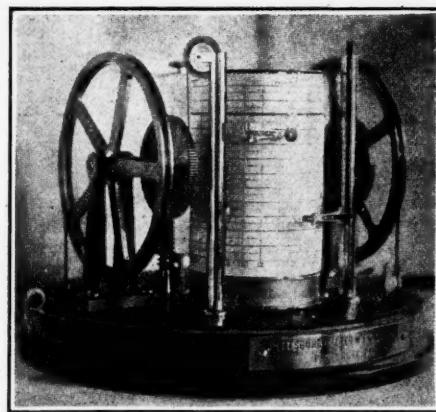
SECTION OF EAGLE BOTTOM DUMP WAGON

There is a wrought plate on the outside of the body 4 x 7/16 inches, running from the front latch to the hinge; an angle iron, one leg running along the inside of the neck and catching the bolts that pass through the wood and the outside plate; the other leg of the angle runs along the underside of the neck. This construction gives the wood wrought iron on the outside, inside and underside. The end boards fit into the groove of the side boards and the body is held firmly together by eight rods, which pass clear through the body from side to side. The doors are crossed from side to side with five pieces of wrought steel and the center edges are steel faced. The outer edges rest on the hinges, the inner on the chain. The angles protect them from warping and splitting, but they form at each end a lap up against the lower edge of the end boards. This end lap together with the middle lap of the doors makes a body that will hold dry sand. The hinges are of wrought iron. The doors dump with the foot. There is no more valuable feature on the wagon than the equalizer at the rear of the body over which the door chain passes. This is the company's patent, and it is claimed to stand alone as the first and real device for passing up one door ahead of the other (and it matters not which door), giving a positive lap to the doors and then takes up all the slack from the chain. It is an eccentric. When the doors fall, the device falls either to the right or left, making the chain longest on the side that it falls (see dotted lines at left). When the doors are being raised the door with the longest chain comes up last. This permits the doors to lap each other and they are always tight when closed.

Recording Loss of Head Gauge

THE Pittsburgh Filter Manufacturing Company, Pittsburgh, Pa., has recently installed recording loss of head gauges in a number of water filtration plants. The instrument records by separate lines the water level over the sand bed of the filter and the level of the effluent. The reading between the two recorded lines gives the absolute loss of head through the filters. An accompanying illustration shows the general features of the gauge.

The gauge is mounted in a circular glass case about 12 in. in diameter and about 12 in. high, trimmed in brass, polished or nickel-plated. The mechanism of the pen is designed to work in a true vertical line instead of on a segment of a circle, as usually arranged, the pen being carried in a traveler guided in a hollow vertical column, and communicating through gears to the float-operating mechanism. The verti-

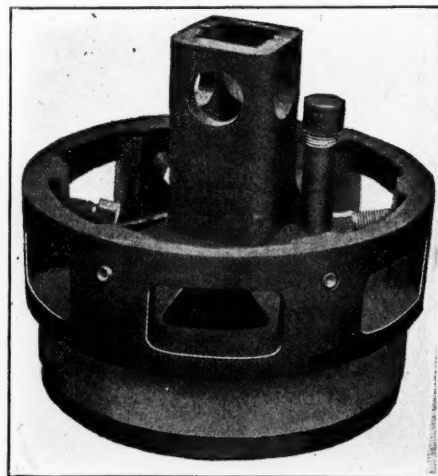


GAUGE FOR RECORDING LOSS OF HEAD

cal readings are $\frac{3}{8}$ in. to the foot and the horizontal readings are $\frac{1}{2}$ in. to the hour, making a chart rectangular in shape, measuring 6 x 12 in. The gauges are fitted with seven-day clock movements, covering a week's operation. Chart on removal may be clipped into the separate days, each dated and bound in book form, thus giving a most convenient method of filing. The chart also gives an immediate and direct reading of the working of the filter bed without the necessity of plotting curves afterward. By the use of the two pens the absolute condition of the bed is available at all times, so that irregularities of operation are readily detected. This type of gauge was developed after experience with gauges that required the maintenance of a uniform level above the sand. As a result of the studies the new type has been designed to be independent of this variation, the loss of head being properly recorded irrespective of changes in the water level above the sand.

The Climax Testing Plug

THE Climax Testing Plug, manufactured by the C. M. Kemp Manufacturing Company, Baltimore, Md., is a comparatively new appliance for the use of

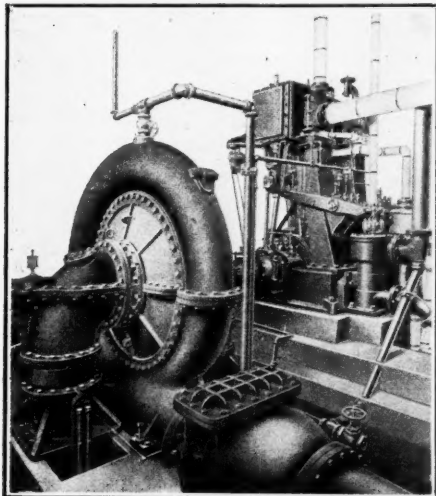


PLUG FOR TEMPORARY USE

water departments and gas companies. It is invaluable for temporarily closing mains while repairing, extending or putting in branches. The plug is quickly applied or removed, is very durable and seldom requires repairs with the exception of new rubber ring. It will save its cost on the first job. It is made in sizes up to 30 inches.

Centrifugal Sewage Pumps

FORMERLY the constant problem of engineers when handling sewage by direct acting pumps was to prevent their being out of service at least one-fourth of the time for cleaning and repairs. The centrifugal pump has revolutionized this. There are no valves to clog, and it can handle a very much larger percentage of solid material. They are today the accepted type of machine for this purpose. A form of installation especially adapted to handling sewage for smaller towns consists of vertical submerged centrifugal pumps direct-connected to vertical



WOOD SEWAGE PUMP DUCT CONNECTED TO ENGINE

motors. Such plants can readily be made to start and stop automatically, only requiring an attendant to look over the machinery once or twice a day as a safeguard against accidents. R. D. Wood & Company, Philadelphia, Pa., have installed a large number of such plants, which are in successful operation.

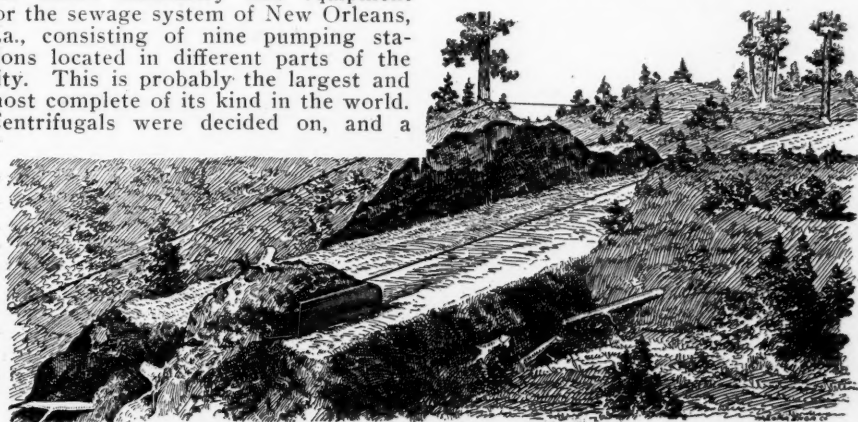
Intercepting sewage systems, in connection with distant disposal beds, always require pumps, unless the country happens to be peculiarly adapted to permit the natural flow of the sewage, which is rarely the case. The Atlantic City Sewage Company is using two Wood pumps to accomplish the above results, the distance conveyed being some 2 miles, and the total head, including friction, over 80 feet. At Washington, D. C., the company installed an engine-driven sewage pump, shown in the illustration; as well as the plants at Saratoga Springs, N. Y.; Fairview Station, Detroit; Vineland, N. J.; Cape May, N. J.; Hampton, Va., and the entire machinery and equipment for the sewage system of New Orleans, La., consisting of nine pumping stations located in different parts of the city. This is probably the largest and most complete of its kind in the world. Centrifugals were decided on, and a

main pumping station handles the sewage from six outlying sub-stations and delivers it into the Mississippi River below the city. Heads range from 35 to 56 feet, according to river elevation. At this station there are installed two 32-inch pumps, steam-engine driven; capacity of each, 3,500 cubic feet per minute. The station also develops current (by means of two 225 k. w., a. c. generators, each direct-connected to horizontal cross-compound Corliss engines) for operating the motors and pumps of the six outlying sub-stations, which deliver into the main sewer terminating at the main station; together with current sent to another outlying station, motor-driven, capacity, 10,000 g. p. m. The sub-stations are equipped with automatic operating devices which start and stop the motors at predetermined levels of sewage at the intake chamber. At Algiers, across the river, there are two motor-driven pumps; capacity, each, 2,500 g. p. m. These pumps were originally rope-driven from horizontal tandem compound engines. Power cables for the sub-stations are carried in ducts from the main station, together with telephone and signal cable wires for communication between the various stations, the signal wires giving alarm in case the sewage at the intake chamber rises to a high point due to the motors not going into operation at the proper time.

Scraper of Large Capacity

THE Bagley grader is a scraper of large capacity operated by an engine. It is suited for making cuts and fills in road work, leveling, excavating, cleaning log ponds, and in fact to advantage in any line of work where there is a large amount of dirt to be moved. The graders are built in various sizes, 5, 6, 7 and 8 feet in width, and the capacity of each is respectively $2\frac{1}{2}$, $3\frac{1}{2}$, 5 and 6 cubic yards. They are so constructed that on account of the curvature of the back, no bottom is used. The knives fitted at the edges of the back cut or put up the dirt, and the scraper fills itself, lifting the back slightly so that the whole load slides on top of the ground. The unloading is accomplished by simply hauling the scraper back, leaving the load where it was stopped, or dumping over the end of the fill. As to power required, for a 5-foot grader the best results are obtained by using a 35 or 40 horsepower donkey engine. The following figures as to capacity and cost are furnished by the manufacturers, the Bagley Grader Company, Tacoma, Wash.:

A 6-foot grader with 600-foot lead will make under ordinary circumstances a round trip in about three minutes at the outside, which will figure at $3\frac{1}{2}$ cubic yards per load at about 800 yards per day.

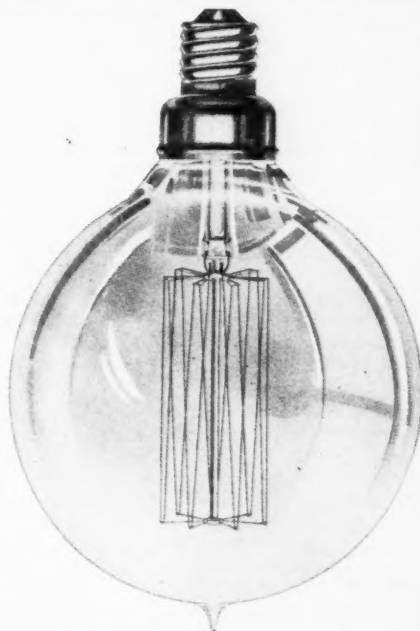


BAGLEY GRADER OPERATED BY HOISTING ENGINE

This figured on a 600-foot haul, but the haul can be made any length up to 1,500 feet with every satisfaction. The length of time required to make the haul would be figured at an average speed of about $6\frac{1}{2}$ feet per second, which would figure about 300 cubic yards per day. When the cost is figured under ordinary conditions, i. e., paying the engineer \$3.75 per day; the fireman \$2.75, the rigging slinger \$2.50, the flagman \$2.25, fuel and water man \$2, team \$5, fuel and wear and tear of the engine \$10 per day, a total of \$28.25, it will be seen that to move 800 yards of dirt 600 feet will cost about 3c., or moving 300 yards 1,500 feet about 9c. per yard. This would be cheap compared with moving same by team, which under like conditions would be \$5 per day for team, \$2 for man to operate the old-style drag scraper carrying 7 cubic feet of dirt a trip, which, figured at a rate of speed of 3 miles per hour, would take 5 minutes per trip or about 31 cubic yards per day, which would make an average cost of over 20c. per yard for moving this dirt 600 feet.

Mazda Incandescent Lamp

THE Mazda lamp is an incandescent lamp manufactured by the General Electric Company with an improved tungsten filament. The tungsten lamp has an efficiency of $1\frac{1}{4}$ watts per candle, the Mazda has as high an efficiency as 1 watt per candle. It is claimed that electricity can now com-



AN IMPROVED TUNGSTEN LAMP

pete with gas and other illuminants on an equal basis of cost. The improvement in this lamp over the tungsten is due to two causes: First, the fact that, due to selective radiation, the filament gives a better efficiency at the same temperature than the carbon filament; and second, that the filament of the Mazda lamp can withstand a much greater temperature than the carbon filament, which increase in temperature increases the amount of light. The filament is of a slightly gray color and is used in the form of loops, which vary in size and length according to the type of the lamp of which they form a part. These are mounted on a number of anchor supports arranged in a circle on the end of a central glass stem. The anchors are flexible and are made of a special metal which will withstand very high temperatures and maintain its elasticity. The use of flexible supports protects the filament from injury in handling and also keeps it from sagging when the lamp is burned in a horizontal position. The filament is very fine—from one to fifteen thousands of an inch. These lamps are rated in watts and are as follows: 25, 40, 60, 100, 150, 250.

TRADE NOTES

Cast-Iron Pipe.—Chicago: There is a satisfactory run of routine orders and several municipalities are in the market for several hundred tons each. Quotations: 4-inch, \$28; 6 to 12-inch, \$27; 16-inch and up, \$26. Birmingham: Curtailment of output which was anticipated has not occurred and reports of new business are more favorable. Quotations: 4 to 6-inch, \$22.50; 8 to 12-inch, \$21.50; over 12-inch, average, \$20.50. San Francisco: Plans are under way on quite a number of water works projects and there is considerable business in prospect. New York: Inquiries are very light. Quotations: 6-inch, \$23.50 to \$24.

Lead.—Market is easier. Quotations: New York, 4.40c.; St. Louis, 4.25c.

New Lighting System.—For the first time in the history of gas, Pittsburg is shown a commercially practical gas light of enormous candle power, using only one mantle, producing 750 candle power and consuming only 15 cubic feet of gas per hour. With each lighting system is a perfect ventilating plant, the ventilation being a by-product and costing the consumer absolutely nothing. None of the products of combustion (as in all other gas lamps) is turned loose in the room, but is carried out into the open and in its place fresh air is drawn into the room. The system was in operation between the hours of 1 p. m. and 9 p. m. at the Hotel Henry. Natural gas at 27 cents per thousand cubic feet makes this proposition in Pittsburg an attractive one. The exhibit was in charge of Alcorn Rector, Hotel Henry.

Gas.—The Wabash Gas Company will ask the Council of Marion, Ind., for a franchise to supply gas to the citizens of Marion at \$1 per 1000 cubic feet.

Electric Conduits.—The American Conduit Company, 140 Nassau street, New York, N. Y., had a very heavy demand for their conduits during the first half of 1910. The business of the company was more than five times as large as during the same period last year. Good shipments have been made to all parts of the country and there have been quite a number of large orders from abroad. The company has sold to the Los Angeles Gas & Electric Corporation 500,000 ft.; to the Southern California Edison Co., Los Angeles, 400,000 ft.; and to Mexico 50,000 ft. There is a movement all over the country towards putting the wires underground in the cities and towns of even moderate size. In most cases this is being gradually done, hence the sales are continuous and promise to extend over a period of years. It will not be a great while before there are no wires in the business sections of cities.

Crusher.—Allis-Chalmers Company reports the sale of considerable rock crushing machinery in the far West. On the Pacific Coast an order recently taken for the account of the Acton Rock Company, Los Angeles, Cal., includes one No. 12, two No. 5 and one No. 2 style K Gates breakers, two large revolving screens, conveying apparatus and a line of induction motors varying from 3 hp. to 175 hp.. The user of this machinery is preparing to furnish large quantities of commercial stone.

Concrete Mixer.—The Koehring Machine Company, Milwaukee, Wis., has increased its capital stock to \$100,000.

Water Works of Monterey, N. L., Mexico.—One of the most interesting features of the Monterey (Mexico) water works system, which has just been completed, is the reinforced concrete distributing reservoir built for the low-pressure supply service, known as the San Geronimo Gravity Supply. This is situated at the extreme western limit of the city, at the foot of the Obispado hill. It is built of reinforced concrete throughout and its principal dimensions are as follows: Length, 394 feet; width, 262½ feet; mean water depth, 13 feet; capacity, 10,568,000 gallons.

The embankments and excavated portion of the reservoir were lined with concrete, 14 inches thick at the bottom and 10 inches thick at the top. The walls have a slope of 1 in 2 and are reinforced. The floor of the reservoir, which was laid after a great part of the roof was completed—so as to get protection from the hot sun—is formed of two thicknesses of concrete. The lower, 5 inches in thickness, was laid in alternate panels between the columns, and upon this lower thickness a waterproof layer of asphalt was laid. The material used was supplied by the American Asphaltum & Rubber Company, of Chicago, Ill., U. S. A., and the work was carried out by ordinary Mexican labor, after receiving a few days' instructions from one of the superintendents of the asphalt company. The concrete for the floor was composed of three and a half parts of crushed limestone, two and a half parts of the same rock crushed to form sand, and one part of the local Hidalgo Portland cement. The concrete was brought to a comparatively smooth surface and after having been kept moist for ten days by sprinkling was allowed to get thoroughly dry and the surface was carefully swept. Upon this prepared surface one coat of "Pioneer" paint was spread with paint brushes and the asphalt poured upon it to a depth of not less than ¼ inch after having been heated in boilers and brought to a temperature of about 425 degrees F. Where the floor joined the pedestals of the columns two coats of asphalt were applied. The finishing coat of concrete was then placed in position on top of the asphalt, laid in panels breaking joint with the lower panels, thus giving a total thickness to the floor of 10 inches, the floor surface being carefully finished with a float, the fine stuff being brought up to the surface, but no plastering was allowed. For the purpose of determining if the reservoir showed any signs of leakage, rubble drains 15 inches wide and 9 inches deep were laid under the floor so as to lead any leakage there might be to a 12-inch drain carried to an inspection pit outside of the reservoir. Altogether there were about 3,828 feet of drain.

The construction of the concrete work of the reservoir, which occupied about six months, was begun in the middle of January, and completed in the middle of July, 1909.

In addition to "Pioneer" Waterproofing Asphalt—covering about 2½ acres of space and a coat of "Pioneer" primer paint—the walls of the reservoir internally were given two coats of "Te-Pe-Co" waterproofing (supplied through the American Asphaltum & Rubber Company of Chicago, Ill.). "Te-Pe-Co" is a liquid mineral solution and was applied with ordinary flat brushes, two coats covering about 2,236 square meters of surface, the second coat re-

quiring less solution than the first. The first coat was applied by four laborers, at 1 peso each per day, in twelve days, making the cost of the first coat 2.15 cents, Mexican, per square meter. The second coat was applied in four days by thirteen men, at a cost of 2.33 cents, Mexican, per square meter.

The reservoir was partly filled, to a depth of 6 feet, and allowed to remain so for several weeks, and no signs of any leakage were observed. The reservoir was then emptied and refilled on August 30, in forty hours, to its full capacity, when it became necessary to make use of the low-pressure supply, owing to a recent flood, which temporarily cut off the supply main of the high-pressure reservoir. Since that date there has been no leakage whatever, proving that the methods adopted to insure water-tightness were successful.

Stand Pipe.—The contract for the new steel standpipe of 500,000-gal. capacity to be erected in connection with the extended water works system at Montgomery, Ala., has been let to the Hartley Boiler Works Company of that city, which is now doing a good deal of work of this kind for municipalities, railroads and industrial plants. Elevated steel tanks are in greater demand this year than they have ever been.

Sea Sand Finish for Concrete.—The Ira S. Decker Company has just completed a large stone and cement job on the South Side, Binghamton, N. Y., which in size and quality of construction exceeds any similar work done in that section this year. The contract called for upwards of 100 feet of special blue stone sidewalk on Conklin avenue and 370 feet of six-foot cement walk, with 30 ornamental steps, leading from Conklin avenue. The cement portion of the job is finished with sea sand, making a most attractive appearance.

Sewer Pipe.—The Factory Promoting Club, Brazil, Ind., has signed a contract with the American Sewer Pipe Company for the erection of an addition to the company's plant, for the manufacture of the larger sizes of pipe. The cost will be about \$100,000.

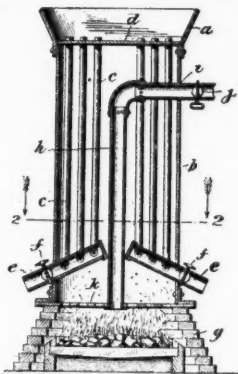
Metal Culverts.—The Michigan Bridge & Pipe Company, Lansing, Mich., now numbers among its products corrugated metal culvert pipe of the so-called Watson pattern, which is made of non-corrosive American ingot iron, furnished by the American Rolling Mill Company, Middletown, O. Service tests have shown that the pipe is extremely durable and that it will bear up under a very heavy load.

Gas Producer.—From Edmonton, Alberta, Canada, where a gas engine and generator of American build are in service at the municipal power plant, it is reported that further opportunities for the sale of similar units, to operate on natural gas, will be opened up in the near future by the development of the new fields, of large extent and great pressure, which were discovered north of Calgary not long ago. Gas producer power is also receiving considerable attention on both sides of the border.

Hoisting Engine.—The self-contained hoisting engine units manufactured by J. S. Mundy, Newark, N. J., are meeting with a large sale throughout the Northwestern States. The builder is represented in that territory by G. E. Ingersoll, St. Paul, who has an office in the Pioneer Press Building. He carries a line of this machinery in a local warehouse, ready for immediate shipment.

PATENT CLAIMS

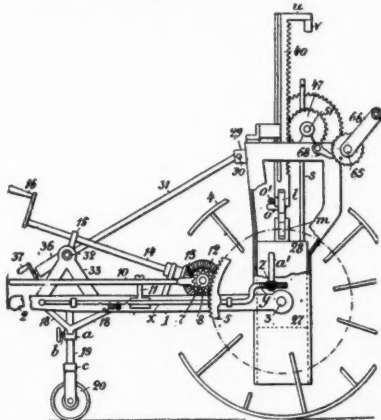
965,214. SAND HEATER AND DRIER. Charles A. Mullen, New York, N. Y., assignor of one-half to Andrew A. Mullen, New York, N. Y. Serial No. 427,574.
A sand drying and heating apparatus comprising a furnace, an inclosed hot-air



chamber or casing arranged directly above the furnace, a plurality of heating tubes within said chamber for receiving the material to be heated and dried, a perforated crown-plate located above the furnace for distributing the hot-air equally between said tubes, and a smoke flue supported by said crown-plate.

965,218. PAVING-RAMMER. Wilhelm Hermann Nordström and Niels Christian Qvist, Horsens, Denmark. Serial No. 486,266.

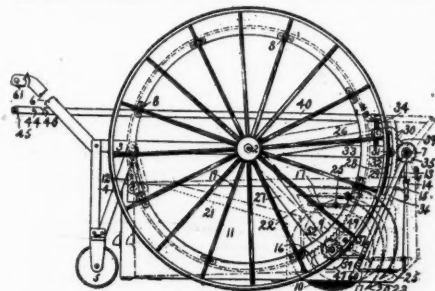
In a road making machine the combination with a gravity hammer, of a rack, means for raising and lowering said rack,



a hook shaped element provided with a circular groove, said element being in slidable engagement in said groove with said rack, one end of said element being loosely connected with said hammer, and being adapted to be disengaged therefrom when sliding motion in one direction is imparted to said element, means for imparting sliding motion thereto when said hammer has reached a certain height, said element being adapted to re-engage said hammer, when said rack is lowered to the same.

965,245. STREET-SWEEPER. Ernest F. Spicer, Springfield, Mass. Serial No. 483,792.

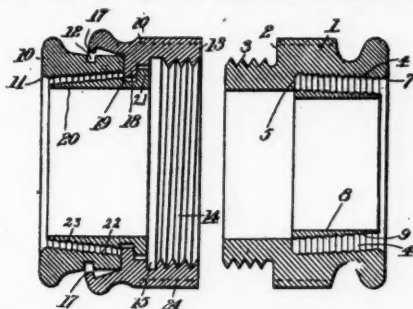
The combination, in a street sweeper, with a pair of wheels and their axle, a pair of segments mounted on said axle, and gears fastened to said wheels, of a brush



provided with axle members journaled in said segments, pinions tight on said axle members and adapted to mesh with said gears, and means to elevate and depress said segments and simultaneously throw said pinions out of mesh with said gears or into mesh with the same accordingly as the segments are raised or lowered.

964,579. HOSE COUPLING. John Hall Stephens, Vernon, Tex. Serial No. 533,116.

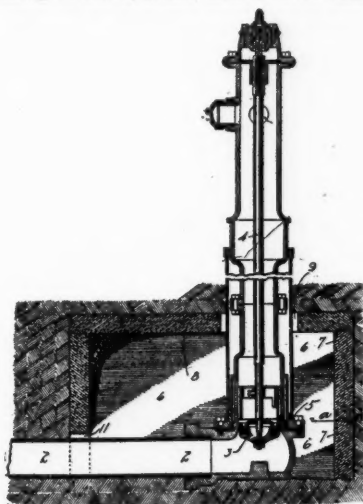
A hose coupling comprising a male member; a female member composed of a body portion and a sleeve, the body portion of the female member having an external groove, a clamping thimble in each of said members, the thimble in the female member having a groove and also a shoulder,



said sleeve having shoulders, one shoulder for engagement in the groove of the body portion of the female member and the other shoulder for engagement in the groove of the thimble in the female member and adapted to overlap the shoulder of the thimble.

964,784. HYDRANT CASING. Harry P. James, Dayton, Ohio. Serial No. 541,805.

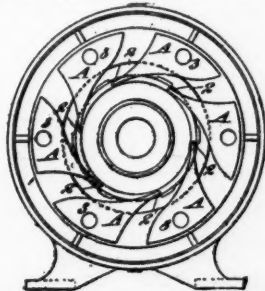
A concrete casing for the underground portion of fire hydrants, consisting of side and end walls the abutting edges of which are rabbeted to maintain said walls in upright positions against inward pressure, one of said end walls being provided with an opening extending through the lower edge thereof to receive the water supply pipe leading to the hydrant, and a cover consist-



ing of two parts the upper and lower surfaces of which are in planes coinciding with the top edges of the side and end walls which are engaged thereby, and the abutting edges of said cover portions being provided with semi-circular recesses which, when said edges abut, form a circular opening which surrounds the body of the hydrant, substantially as shown and described.

964,963. HIGH-PRESSURE TURBINE PUMP. Walter L. Forward, West Berkeley, Cal., assignor to Byron Jackson Iron Works, West Berkeley, Cal., a Corporation of California. Serial No. 548,149.

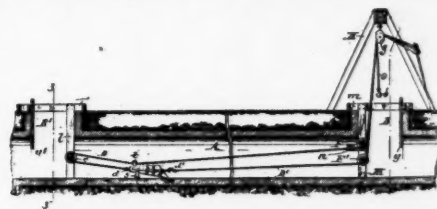
In combination with the guide vanes of a turbine pump, and annular retaining seg-



ments formed thereon, of walls or covers having corresponding grooves adapted to receive the segments, and a lining of fusible metal cast therein.

965,249. SEWER-CLEANING APPARATUS. John W. Stolkrantz, Jamestown, N. Y., assignor of one-half to Reese T. Harris, Buffalo, N. Y. Serial No. 500,869.

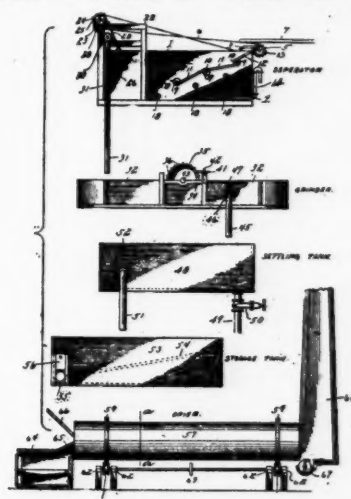
A bucket for cleaning sewers, etc., comprising upper and lower body sections



which are pivotally connected at their rear ends, and means for limiting the separation of said sections comprising a pair of toggle links which have their inner ends pivotally connected while their outer ends are pivoted respectively to said body sections.

965,271. PROCESS FOR REDUCING GARBAGE. James W. Altick and William T. Wuichet, Dayton, O. Serial No. 522,153.

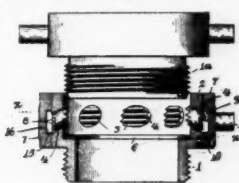
The herein described process of treating garbage for commercial purposes, which consists in beating the organic and inor-



ganic matter in water to separate the same, and in further agitating the water below the beaters to assist the separation, and in finally grinding the organic matter thus separated and disintegrated in water.

965,286. HOSE-COUPLING. Joseph W. Ferguson, Quincy, Mass. Serial No. 490,171.

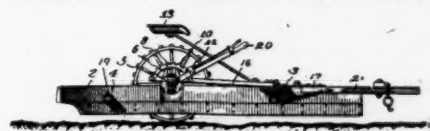
An automatic coupling comprising a socket having openings through its wall, terminally-threaded blocks slidable in said opening, and a sleeve rotatable about said socket and blocks, said sleeve being provided with projections on its inner face



which can be brought into or out of the paths of said blocks by a partial turn of said sleeve, means limiting the movement of said sleeve whereby at one limit said projections are out of said paths, and at the other limit said projections are in said paths, and resilient means yieldingly holding said sleeve with its said projections out of said paths.

965,628. ROAD GRADER AND LEVELER. James S. Haynes, Marion, Mich. Serial No. 548,301.

In a road grader and leveler, the combination with an axle, of wheels rotatably mounted thereon, grader boards, a cross-



bar connecting the grader boards together, flexible means connecting the grader boards to the axle, and means for rotating the axle for raising the grader board.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS

Road Construction in Cuba. Notes on. Abstract of paper by Lieut.-Col. M. M. Patrick in the Professional Memoirs of the Corps of Engineers. 3 pp., Contractor, July 15. 20 cts. 3 pp., Engineering-Contracting, July 27. 10 cts.

Roads Construction. The need of scientific investigation. By Francis Wood. Illustrated, 2 pp., Municipal Journal, July 8. 15 cts.

Construction of Broken Stone Road. By Hiram Donkin. 2½ pp., Contract Record, July 13. 10 cts.

Location and Construction of Public Roads. Paper before Engineering Association of the South. By P. Byrne. 18 pp., Proceedings, Engineering Association of the South, June. 50 cts.

Road Work in Texas. 1/3 p., Municipal Journal and Engineer, July 13. 10 cts.

San Joaquin County Highway Improvement. ¼ p., Engineering Record, July 23. 10 cts.

Roads and Pavements. Contrast of American and European Methods. By Ernest Flagg. Illustrated, 9 pp., Public Officials Magazine, July. 10 cts.

Cost Data of Road Building. By C. R. Wheelock. 1½ pp., Municipal World, July. 10 cts.

Road Rolling. A comparison of new and old methods. 2 pp., Surveying and Civil Engineer, July 8. 20 cts.

Road Materials and Some Simple Rules for Testing Them. Paper before American Congress of Road Builders. By A. B. Fletcher. 2 pp., Contractor, July 1. 20 cts. 2½ pp., Contract Record, July 27. 10 cts.

Sand-Clay Roads in Georgia. Constructing. ½ p., Engineering-Contracting, July 13. 10 cts.

Dust Prevention Experiments. Waste sulphite liquors at Washington Slag used in several ways at Youngstown. Office of Public Roads experiments. 2 pp., Municipal Journal and Engineer, July 27. 10 cts.

Dust Prevention Experiments. With tar, oil and artificial asphalt preparations, cement, slag and brick. By Office of Public Roads and Cornell University. Illustrated, 3 pp., Municipal Journal and Engineer, Aug. 3. 10 cts.

Bituminous Materials. Instrument for Ascertaining the Tenacity and Ductility of. Paper before American Society for Testing Materials. By Herbert Abraham. Illustrated, 1½ pp., Engineering-Contracting, July 20. 10 cts.

Determination of Soluble Bitumen. Paper before American Society for Testing Materials. By Prevost Hubbard and C. S. Reeve. 3 pp., Engineering-Contracting, July 6. 10 cts.

Machine for Testing the Adhesive Quality of Pitch. Illustrated, ½ p., Engineering-Contracting, July 13. 10 cts.

Experiments of the State Highway Department of Ohio with Various Road Binding Materials. 3 pp., Engineering-Contracting, July 6. 10 cts.

Tar for Road Works. Methods of production and their effects on its quality. Dehydration and distillation. By R. O. Wynne-Roberts. Illustrated, 3 pp., Surveyor, July 1; 4 pp., July 15. 20 cts.

Asphaltic Concrete. Resurfacing Chicago Boulevard with. Illustrated, 1 p., Contractor, July 1. 20 cts.

Bituminous Macadam and Bituminous Concrete. Communication from F. L. Olmsted. ¼ p., Municipal Journal and Engineer, July 13. 10 cts.

Road Construction Terminology. Communication from George C. Warren. 1 p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Standard Tests for Road Materials. Proposed. of the American Society for Testing Materials. 1 p., Engineering-Contracting, July 20. 10 cts.

New Method for Testing Coal Tar Creosote. Illustrated, ¼ p., American Gas Light Journal, Aug. 1. 10 cts.

Road Maintenance Work in 1909 of the Massachusetts Highway Commission. 1½ pp., Engineering-Contracting, July 20. 10 cts.

Road Maintenance Problems. By G. A. Jack. 1¼ pp., Surveyor, July 15. 20 cts.

Highway Administration. Some Modern Difficulties of. Paper before Association of Municipal and County Engineers. By J. Siddals. 2 pp., Surveying and Civil Engineer, July 8. 20 cts. 1½ pp., Contract Journal, June 29. 20 cts. 3 pp., Surveyor, July 15. 20 cts.

The Road Board's First Circular and Some Considerations Thereof. 3½ pp., Surveyor, July 22. 20 cts.

Highway Traffic Census of the Massachusetts Highway Commission. ½ p., Engineering-Contracting, July 20. 10 cts.

Relation of the Auto to Other Vehicles on Our Public Highways. By W. G. Tretheway. 1½ pp., Municipal World, July. 10 cts.

Grade Crossing Elimination. Some Problems of. 3 pp., Municipal Engineering, August. 25 cts.

Clearance and Grade Requirements for Carrying Highways Over or Under Railway Lines. Paper before Canadian Society of Civil Engineers. By W. H. Breithaupt. ¼ p., Engineering News, July 21. 15 cts.

Standard Regulations of the Dominion Railway Board Affecting Highway Crossings. ½ p., Canadian Engineer, July 21. 15 cts.

Pavements for Cambridge. ½ p., Municipal Journal and Engineer, July 27. 10 cts.

Brick Pavements in Rochester, N. Y. 2 pp., Municipal Engineering, July. 25 cts.

Brick Pavement Investigation. ½ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

A Brick Paving Problem. ¼ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

A Little Bituminous Filler Story. By E. A. Kingsley, city engineer, Little Rock, Ark. ½ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Street Opening Improvement in Leeds. Illustrated, 3 pp., Contract Journal, July 30. 20 cts.

Grading of Denny Hill, Seattle. Illustrated, 2 pp., Contractor, July 1. 20 cts.

Value of Rise and Fall Elimination on Streets and Roads. 1 p., Engineering News, July 14. 15 cts.

Curb and Gutter. Standard Specifications for Portland Cement. Illustrated, 5½ pp., Cement Age, July. 15 cts.

SEWERAGE AND SANITATION

Separate System of Sewers. By John S. Hodgson. ¼ p., Surveying and Civil Engineer, July 1. 20 cts.

Ground Water. Infiltration of, Into Sewers. Illustrated, 1 p., Engineering-Contracting, July 20. 10 cts.

Constructing Sewer Siphon under the River Dee, Aberdeen, Scotland. From paper before Institution of Civil Engineers. By G. R. G. Conway. Illustrated, 1½ pp., Engineering-Contracting, July 6. 10 cts.

Method of Constructing Stream Crossings for a Large Trunk Sewer. Illustrated, 2½ pp., Engineering-Contracting, July 20. 10 cts.

Difficult Sewer Reconstruction. Illustrated, 2 pp., Engineering Record, July 9. 10 cts.

Pollution of Streams. Laws to Prevent. By A. H. Seymour. 2/3 p., Fire and Water, July 13. 10 cts.

Water Courses Not the Natural Repositories of Sewage. 2 pp., Bulletin New York State Department of Health, June. 10 cts.

Sewage Treatment. Economy in. ½ p., Municipal Journal and Engineer, July 20. 10 cts.

Philadelphia Sewage Disposal Investigation. ¼ p., Municipal Journal and Engineer, July 27. 10 cts.

Sewage Disposal Works at Bushey. Paper before Institution of Municipal Engineers. By Ernest E. Ryder. Illustrated, 2½ pp., Surveying and Civil Engineer, July 15. 20 cts.

Modern Sewage Treatment. Paper before Association of Managers of Sewage Disposal Works. By W. J. Dibdin. 4 pp., Surveying and Civil Engineer, July 15. 20 cts.

Sewage and Refuse Disposal in Memphis, Tenn. 2 pp., Municipal Engineering, July. 25 cts.

Agricultural Use and Value of Sewage. By J. A. Voelcker. 1½ pp., Surveyor, July 8. 20 cts.

Agricultural Use of Sewage. Rendered difficult by water carriage system. Irrigation unfavorable to utilization of nitrogen by plants. Fertilizer from sludge. 1½ pp., Municipal Journal and Engineer, Aug. 3. 10 cts.

Sedimentation. Rapid Sewage. Abstract of experimental investigations on the sedimentation of sewage at Cologne, Germany. Made by city engineer Steuernagel. By Emil Kuichling. 2 pp., Municipal Journal and Engineer, July 20. 10 cts.

Septic Tanks in Ottawa. Illustrated, 1/3 p., Municipal Journal and Engineer, July 20. 10 cts.

Automatic Revolving Sewage Distributor. 1 p., Engineering Record, July 30. 10 cts.

Sewage Fungus and Purification. Vegetable organisms thrive on nitrates. Character of fungus and index of purification of effluent. Study of this urged on superintendents. Abstract of paper by Gilbert J. Fowler before the Leeds Sanitary Congress. 2/3 p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Sterilization of Sewage Effluents. Illustrated, 1¼ pp., Surveying and Civil Engineer, July 1. 20 cts.

Using Sewer Water for Condensation. At McDonald Road Station, Edinburgh, Scotland. Illustrated, 3 pp., Electrical Review, July 9. 10 cts.

Water Supply. the Relation of, to Sewerage and Sanitation. Paper before Incorporated Association of Municipal and County Engineers. By Richard Read. 1 p., Surveying and Civil Engineer, July 8. 20 cts.

Sanitation of the Panama Canal. Paper before London School of Tropical Medicine. By Wm. Osler. 2 pp., Water, July 15. 20 cts.

Clearance of Unhealthy Areas. Illustrated, 1½ pp., Surveyor, July 22. 20 cts.

Sanitary Conveniences in Vienna. ¼ p., Municipal Journal and Engineer, July 20. 10 cts.

Flies As Propagators. By W. N. Hutt. Illustrated, 11 pp., Bulletin North Carolina Board of Health, April. 10 cts.

Rat Suppression in San Francisco, Cal. By J. M. Converse. 3 pp., Public Health Reports, July 22. 10 cts.

Consumptive. the Municipality and the. Paper before National Association for the Prevention of Consumption. By H. Scurfield. 1 1/3 pp., Municipal Journal, July 15. 15 cts.

Hook Worm Disease. By J. A. Ferrell. 20 pp., Bulletin North Carolina Board of Health, May. 10 cts.

WATER SUPPLY

Water Works. Harrisburg. Fire hydrants, water meters, operation of filters, bacterial efficiency of plant, sand analysis, income and expenditures. Illustrated, 1½ pp., Municipal Journal and Engineer, Aug. 3. 10 cts.

Water Works at Springfield, O. Illustrated, 3 pp., Municipal Engineering, August. 25 cts.

Water Works of Madison, Wis. By Ralph Birchard. Illustrated, 2 pp., Municipal Engineering, July. 25 cts.

San Angelo Public Service. Water and light plants combined. Supply from spring fed river. Electric equipment. Oil as fuel. Rates for light and power. Illustrated, 1 p., Municipal Journal and Engineer, July 13. 10 cts.

Battle Creek Water Works. ¼ p., Municipal Journal and Engineer, July 20. 10 cts.

Water Supply System of Santiago, Cuba. By H. F. Cameron. Illustrated, 1 1/3 pp., Engineering Record, July 30. 10 cts.

Notes on the Water Supply of Havana, Cuba. By R. W. Pratt. Illustrated, 1 1/3 pp., Engineering News, July 14. 15 cts.

Plymouth Water Undertaking. Paper before Association of Municipal and County Engineers. By Frank Howarth. Illustrated, 2½ pp., Surveying and Civil Engineer, July 15. 20 cts. Illustrated, 2 pp.,

Contract Journal, July 6. 20 cts. Illustrated, 2½ pp., Contract Journal, July 13. 20 cts.

Leominster Water Works. 1/3 p., Municipal Journal and Engineer, July 27. 10 cts.

Water Purification, Economy in. ½ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Cincinnati Water Purification. ½ p., Municipal Journal and Engineer, July 27. 10 cts.

Filters, Maiden Creek. Slow sand filters at Reading, Pa. Three million gallons per acre per day. Details of design. Methods of construction. Contractor's plant. Pumping station. Use of copper sulphate temporarily. Illustrated, 3 pp., Municipal Journal and Engineer, July 27. 10 cts.

Will Slow Sand Filtration Give Way to Disinfecting Methods? ¾ p., Canadian Engineer, June 30. 15 cts.

Mechanical Filter for the Removal of Iron. New plant at Iowa City, Ia. Illustrated, 2 pp., Engineering Record, July 23. 10 cts.

Sterilization of Water by Chlorine and Ozone. Paper before Royal Sanitary Institute. By G. Sims Woodhead. 2 pp., Surveyor, July 22. 20 cts.

Water Purification by Ozone. 2 pp., Municipal Engineering, August. 25 cts.

Hypochlorite at Harrisburg. ¼ p., Municipal Journal and Engineer, July 20. 10 cts.

Hypochlorite Disinfection of the Water Supply of Toronto, Ont. By T. A. Murray. Illustrated, 1 p., Engineering News, July 21. 15 cts.

Eight Examples of Hypochlorite Sterilization of Water. 3 pp., Canadian Engineer, June 30. 15 cts.

Algae at Holyoke, Experience with. ¼ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Water Storage and Droughts. ½ p., Municipal Journal and Engineer, July 13. 10 cts.

Water Storage Capacity Required. 2/3 p., Municipal Journal and Engineer, July 13. 10 cts.

Forests, Influence of, on Streams. Paper before Engineering Association of the South. By L. C. Glenn. 28 pp., Proceedings, Engineering Association of the South, June. 50 cts.

Earthen Dams, British Views Regarding. 1 p., Engineering Record, July 9. 10 cts.

Making a Stream Excavate Its Own Reservoir and Build Its Own Dam. By B. A. Heinly. Illustrated, 2 pp., Municipal Engineering, July. 25 cts.

Reservoir Outlets to Earthen Embankments. Paper before Association of Water Engineers. By G. N. Yourdi. Illustrated, 2½ pp., Contract Journal, June 29. 20 cts.

Hill View Reservoir, New York. Part of new Catskill supply. Features of the design. Provision for housing and feeding laborers and horses. Dump carts, cars, stone crushers, portable air compressors, steam shovels and other appliances. Illustrated, 6 pp., Municipal Journal and Engineer, Aug. 3. 10 cts.

Water Tank, Reinforced Concrete. ½ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Constructing and Waterproofing a Circular Reinforced Concrete Water Tank. Paper before Minnesota Engineers. By H. F. Blomquist. 1/3 p., Engineering-Contracting, July 13. 10 cts.

Pumping Plant for Park Purposes, Small. Illustrated, ½ p., Engineering Record, July 9. 10 cts.

Pressure Record, Madison Water. Illustrated, 1/3 p., Municipal Journal and Engineer, July 13. 10 cts.

Pipe, Machine Calking of Iron. ¼ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Leaks in River Crossings. ¼ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Laying Water Pipe by Day Labor at Tuscaloosa, Ala. Illustrated, 1 1/3 pp., Engineering-Contracting, July 6. 10 cts.

Raising a High-Pressure Water Pipe. Illustrated, ½ p., Engineering Record, July 16. 10 cts.

Poor Pipe Causes Red Water in Springfield, 2 1/3 pp., Engineering Record, July 30. 10 cts.

Conduit, Reinforced Concrete, Operating Under a Head. Illustrated, 1½ pp., Engineering Record, July 23. 10 cts.

Siphon, Reinforced Concrete, for a 65-Foot Head. Construction on Los Angeles Aqueduct. Illustrated, 1 p., Engineering Record, July 9. 10 cts.

Installation of a Siphon with Automatic Air Discharge in the Water Distribution System of Bakou. By W. H. Lindley. Illustrated, 2 pp., La Technique Sanitaire, July. 50 cts.

Tunnel Lining, Method and Cost of Constructing a Concrete, with an 80-foot Gravity Chute. By W. D'Roan. Illustrated, 1 p., Engineering-Contracting, July 6. 10 cts.

Spring Water, Impure. ¼ p., Municipal Journal and Engineer, July 27. 10 cts.

New Researches on the Formation of Subterranean Springs. By G. Lidy. 3 pp., La Technique Sanitaire, July. 50 cts.

Sanitation, Relation of Water Supply to Sewerage and. From paper before Association of Municipal and County Engineers. By Richard Read. 1 p., Contract Journal, July 6, 20 cts. 1½ pp., Surveyor, July 22. 20 cts.

Depreciation in Water Works Accounts with Reference to Uniform Reports. Paper before New England Water Works Association. By H. S. Chase. 6½ pp., Water and Gas Review, July. 20 cts. 2½ pp., Canadian Engineer, July 28. 15 cts.

Water Rates and Records at Valparaiso, Ind. Paper before Indiana Sanitary and Water Supply Assn. By E. L. Loomis. 2 pp., Municipal Engineering, July. 25 cts.

Billing Water Accounts. ¼ p., Municipal Journal and Engineer, July 13. 10 cts.

Omaha Water Company Wins in the Supreme Court. 3 pp., Public Service, July. 20 cts.

STREET LIGHTING AND POWER PLANTS

Street Lighting, Decorative. Paper before National Electric Light Association. By E. L. Elliott. 1½ pp., Public Service, July. 20 cts.

Public Lighting from a Municipal Point of View. Paper before Institution of Gas Engineers. By Jacques Abady. 3½ pp., Surveying and Civil Engineer, July 8. 20 cts.

Lighting Competition Avoided. ¼ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Contract for Lighting and Power Service, Some Practical Considerations Concerning. Paper before Canadian Electrical Association. By W. M. Ryerson. 3 pp., Canadian Engineer, July 21. 15 cts.

Measuring Light, Some Methods of. Illustrated, 3½ pp., Canadian Engineer, June 30. 15 cts.

Lamps, High-Pressure. Illustrated, 1 p., Progressive Age, July 15. 20 cts.

Efficient Reflector for Street Lamps. Illustrated, ½ p., Engineering News, July 7. 15 cts.

Ductile Tungsten and Metal Filament Lamps. Paper before American Institute of Electrical Engineers. By J. W. Howell, W. D. Coolidge and C. F. Scott. 2 pp., Engineering News, July 7. 15 cts.

Wires, Shade Trees and Overhead. ½ p., Municipal Journal and Engineer, August 3. 10 cts.

Power Stations, Municipal Electric Light and. 1 p., American Gas Light Journal, July 11. 10 cts.

Construction of Extensive Intake System at Montreal. Illustrated, 1 p., Contract Record, July 13. 10 cts.

Mechanical Preparation of Coal. Paper before International Fuel Association. By H. H. Stook. 2 pp., Engineering News, July 14. 15 cts.

Public Policy in Electric Service. 2 pp., Public Service, July. 20 cts.

Water Powers, Conservation of. Presidential address before American Institute of Electrical Engineers. By L. B. Stillwell. 3 pp., Engineering News, July 7. 15 cts.

Utilization, Preservation and Conservation of Water Power. Paper before Colorado State Conservation Commission. By L. G. Carpenter. 1 p., Engineering Record, July 23. 10 cts.

Conduits for Electric Cables, Concrete. Illustrated, ½ p., Engineering News, July 14. 15 cts.

Gas Explosions in an Electric Conduit, New York City. By A. A. Breneman. 1 2/3 p., Engineering News, July 14. 15 cts.

Gas in Small Cities. Paper from National Commercial Gas Association. By A. G. Langenbach. 2/3 p., Progressive Age, August 1. 20 cts.

How to Make Flue-Gas Analyses. By J. C. Smallwood. Illustrated, 3 pp., Power, July 19. 5 cts.

Gas Companies, Duties and Liabilities of, to Public with Reference to Supply of Gas. By J. E. Brady. 1½ pp., American Gas Light Journal, August 1. 10 cts.

GOVERNMENT AND FINANCE

Municipal Charters, Synopsis of Latest Ideas in. 3½ pp., Pacific Municipalities, June. 20 cts.

Public Service Companies and the People. By L. B. Stowe. 7 pp., The Outlook, July 9. 5 cts.

Quasi-Public Corporations and the Public. Paper before League of Electrical Interests at St. Louis. By H. L. Dougherty. 4 pp., Public Service, July. 20 cts.

Benefits From Utility Consolidation. 2 pp., Public Service, August. 20 cts.

Commission Control of Public Service Corporations. By F. P. Royce. 2 pp., American Gas Light Journal, Aug. 1. 10 cts. 3 1-2 pp., Public Service, August. 20 cts.

How Wisconsin Regulates Her Public Utilities. By John R. Commons. 3 pp., Review of Reviews, August. 25 cts.

Finance in City Affairs, Constructive Reforms accomplished in New York. By W. A. Prendergast. 3 pp., Financier, July 23. 25 cts.

Syndicating Act for Smaller Cities. Plea for loan collections. Editorial. 1 1-2 pp., Century, August. 35 cts.

Tax, The Personal Property. A Symposium. 17 pp., Journal of Accountancy, July. 25 cts.

Municipal Accounting and Administration, Side Lights on. By Wm. Dolge. 2 pp., Pacific Municipalities, June. 20 cts. Massachusetts Statistics Bureau. Collecting Municipal and financial statistics. Classification of receipts and payments. Delay in furnishing data. Incompetent accounting officers. 1 1-2 pp., Municipal Journal and Engineer, July 20. 10 cts.

STREET CLEANING AND REFUSE DISPOSAL

Street Cleaning, New York. Two thousand miles of streets covered. Amount of rubbish, ashes and garbage collected. Organization of force. Collection and disposal. Methods of measuring snow. Juvenile league. Illustrated, 5 pp., Municipal Journal and Engineer, July 13. 10 cts.

Modern Methods of Street Cleaning. Paper before New England Conference on Street Cleaning. ¾ p., Engineering News, July 28. 15 cts.

Pavement Flushing Rig, Portable. Illustrated, ½ p., Engineering Record, July 16. 10 cts.

Town Scavenging and Refuse Disposal. By H. S. Watson. 3 pp., Municipal Engineering July; 2 pp., August. 25 cts.

Disposal of Garbage and Other Municipal Refuse, Marseilles, France. By Consul-General A. Gaulin. 1/3 p., Engineering News, July 7. 15 cts.

Refuse Destructor, Tests of the Milwaukee. Illustrated, 2½ pp., Engineering Record, July 16. 10 cts.

Construction and Testing of the Milwaukee Refuse Incinerator. By S. A. Greeley. Illustrated, 6 pp., Engineering News, July 21. 15 cts.

Municipal Abattoir and Reduction Plant at Paris, Texas. By E. H. McCuiston. 2 pp., Municipal Engineering, August. 25 cts.

Nuisances from Crematories. ¼ p., Municipal Journal and Engineer, July 27. 10 cts.

TRAFFIC AND TRANSPORTATION

Rapid Transit Problem in Pittsburgh. From Report by B. J. Arnold. 4½ pp., Canadian Engineer, July 28. 15 cts.

The Peak-of-the-Load Problem. 1 p., Engineering News, July 7. 15 cts.

Fare, Tyranny of the Nickel. 2 pp., Public Service, August. 20 cts.

Valuation of the Electric Street Railways of Detroit, Mich. Itemized statement. 4 pp., Engineering-Contracting, July 13. 10 cts.

Subway Situation, New York. By Mayor Wm. J. Gaynor. Illustrated, 4 pp., Outlook, July 30. 5 cts.

Freezing Method of Tunneling, Metropolitan Subway at Paris. Illustrated, 1½ pp., Engineering Record, July 16. 10 cts.

How Tunnels are Driven Under Rivers. By G. W. M. Boycott. Illustrated, 2½ pp., Surveying and Civil Engineer, July 22. 20 cts.

Reconstruction of the Washington Street Tunnel under the Chicago River. Illustrated, 4 pp., Engineering News, July 21. 15 cts.

Street Railways of Some German Cities and Some American Cities. Illustrated, 1½ pp., Engineering News, July 28. 15 cts.

STRUCTURAL MATERIALS

Cement Burning, New Method of. ¾ p., Engineering Record, July 9. 10 cts.

Recent Investigations on the Constitution of Portland Cement. By Clifford Richardson. Illustrated, 2 pp., Engineering Record, July 16. 10 cts.

Aluminates: Their Properties and Possibilities in Cement Manufacture. Paper before American Society for Testing Materials. By Henry S. Stackman. 1½ pp., Engineering Record, July 9. 10 cts.

Concrete, Notes on Use of Portland Cement. Paper before Institution of Municipal Engineers. By Spencer Sills. 1½ pp., Surveying and Civil Engineer, July 1. 20 cts.

Sea Water, Concrete in. 1½ pp., Surveying and Civil Engineer, July 22. 20 cts. Effect of Sea Water, Alkali Water and Sewage on Portland Cement and Methods Used for Counteracting the Same. By W.

D'Rohan. 2 pp., Engineering-Contracting, July 20. 10 cts.

Progress Report on the Long Time Tests of Concrete in Sea Water by the Scandinavian Association of Portland Cement Manufacturers. Report to the International Association for Testing Materials. By A. Pulson. 1½ pp., Engineering-Contracting, July 20. 10 cts. 1¼ pp., Engineering News, July 7. 15 cts.

Sodium Silicate, Effect of, on Concrete. Paper before American Society for Testing Materials. By Albert Moyer. 1 p., Engineering Record, July 23. 10 cts. 1 p., Engineering-Contracting, July 6. 10 cts.

Water Proofing Concrete, Investigations on. By American Society for Testing Materials. ½ p., Engineering-Contracting, July 20. 10 cts.

Waterproofing Engineering Structures, Using Pitch and Felt. From paper before Boston Society of Civil Engineers. By J. H. O'Brien. Illustrated, 3 pp., Engineering-Contracting, July 13. 10 cts.

Iron Embedded in Concrete, Corrosion of. By G. F. Shaffer. Illustrated, 1½ pp., Engineering Record, July 30. 10 cts.

CITY PLANNING AND MUNICIPAL ART

City Plan Exhibit in Berlin. By G. B. Ford. Illustrated, 3 pp., Survey, July 30. 10 cts.

Town Planning in the Light of the Housing and Town Planning Act. Paper before Association of Municipal and County Engineers. By H. E. Stilgoe. 4 pp., Surveyor, June 24. 20 cts.

Berlin Municipal Exhibition. Illustrated, ¾ p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Landscape Gardening, The Economic Value of. How suburban improvements may increase the value of real estate. By Loring Underwood. Illustrated, 7 pp., Advance New England, July. 10 cts.

Street Trees. 1-3 p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Park Problem, New York's City Hall. A protest against taking part of it for a court house. History of the park. By Montgomery Schuyler. Illustrated, 9 pp., The Outlook, July 23. 15 cts.

Housing and Town Planning. By Henry E. Stilgoe. 1½ pp., Surveying and Civil Engineer, July 22. 20 cts.

Housing and Town Planning Progress. By H. R. Aldridge. 1 p., Municipal Journal July 8. 15 cts.

Some Aspects of the Housing and Town Planning Act. Paper before Institution of Municipal Engineers. By T. C. Barralet. 3½ pp., Surveyor, July 1. 20 cts.

Smoke Law, Boston's New. 1/3 p., Municipal Journal and Engineer, Aug. 3. 10 cts.

MISCELLANEOUS

Bridge, Reinforced Concrete, at Los Angeles, Cal. Novel tower and flume method of distributing concrete. Foundations. Centering. Contractor's Plant. By Edward P. Bailey. Illustrated, 1½ pp., Municipal Journal and Engineer, July 13. 10 cts.

Analysis of Concrete Bridge Failures. Paper before Canadian Cement and Concrete Association. By C. I. Young. Illustrated, 6 pp., Cement Age, July. 15 cts.

Concrete Bridge at Peru, Ind. By F. C. Perkins. Illustrated, 3 pp., Cement World, July. 15 cts.

Hudson River Bridge at Waterford, N. Y. By H. N. Peck. Illustrated, 1 p., Engineering News, July 14. 15 cts.

Mississippi River Bridge at St. Louis for the Illinois Electric Traction System. 6 pp., Engineering News, July 28. 15 cts.

Water Front Improvements at Oakland, Municipal. 2-3 p., Engineering Record, July 9. 10 cts.

Municipal Wharf at Montgomery, Ala. Novel Solution of the River Loading Problem. By G. C. Scherer. ¾ p., Engineering News, July 14. 15 cts.

An Improvement in Pier Construction, San Francisco. Illustrated, 1 p., Engineering Record, July 16. 10 cts.

Proposed Structures to Prevent Future Damage from Flood at Paris. 1-3 p., Engineering News, July 28. 15 cts.

Retaining Walls, Comparative Sections of 30, and Some Notes on Retaining Wall Design. By F. H. Carter. Illustrated, 2 pp., Engineering News July 28. 15 cts.

Retaining and Other Walls. By H. Slicer. Illustrated, 2 pp., Surveying and Civil Engineer, July 15. 20 cts.

Foundation Work on the Municipal Building, New York. Illustrated, 1 1-3 pp., Engineering Record, July 9. 10 cts.

Testing Soil Below the Surface for Foundation Loads. Illustrated, 1 p., Engineering Record, July 16. 10 cts.

City Hall, Portland, Me. Two pages of plates. American Architect, July 20. 25 cts.

Baths, Extension of Harrogate Municipal. Illustrated, 1 p., Municipal Journal, July 8. 15 cts.

Markets and Abattoir, Edinburgh. 2 pp., Illustrated, Municipal Journal, June 24. 15 cts.

Washington's Municipal Markets. Illustrated, 3 pp., Municipal Journal and Engineer, July 20. 10 cts.

Maps and Records, City. Practice at Moline, Ill. 1-4 p., Municipal Journal and Engineer, July 20. 10 cts.

Reference Maps in the City Engineer's Office, Seattle. Illustrated, 1 p., Engineering Record, July 23. 10 cts.

Reference Bureau, Municipal. Proposition of the Civic League of St. Louis. 2-3 p., Municipal Journal and Engineer, July 13. 10 cts.

Municipal Work at Hawick. Paper before Association of Municipal and County Engineers. By Charles Brown, 2 pp., Surveyor, July 1. 20 cts. 1 p., Contract Journal, June 29. 20 cts. 1 1-2 pp., Surveying and Civil Engineer, July 22. 20 cts.

Improvements in Madrid. 1-4 p., Municipal Journal and Engineer, Aug. 3. 10 cts.

Municipal Achievements of the City of Riverside. By Mayor S. E. Evans. Illustrated, 40 pp., Pacific Municipalities, June. 20 cts.

Municipal Telephone in Hull. 1-3 p., Municipal Journal and Engineer, July 27. 10 cts.

Chicago Telephone Rates. 2 pp., Public Service, July. 20 cts.

Municipal Church. The crying need of it, and a program of its possible work. By Washington Gladden. 7 pp., Century, August. 35 cts.

City Life in France. By H. N. Shepard. 3 pp., Outlook, July 16. 5 cts.

Economy in Municipal Services. 3-4 p., Municipal Journal and Engineer, July 27. 10 cts.

Commissions, Special Engineering. 1 1-3 pp., Engineering News, July 21. 15 cts.

Engineering, Two Qualities for Success in. Address before Worcester Polytechnic Institute. By I. N. Hollis, 3 1-2 pp., American Gas Light Journal, July 25. 10 cts.

Precarious Expedients in Engineering Practice. Paper before American Society of Civil Engineers. By John Hawkesworth. 2 1-2 pp., Engineering-Contracting, July 27. 10 cts.

Contracts, Standardizing Public Works. Paper before National Association of Controllers and Accounting Officers. By R. W. Creuzbaur. 1 p., Engineering News, July 28. 15 cts.

Handling Supplies, Economy of the Piece Work System in. Paper before Railway Storekeepers Association. By D. C. Curtiss. 1 p., Contract Record, July 13. 10 cts.

Motive Powers for Municipal Engineers. Paper before Association of Municipal and County Engineers. By A. E. Collins. 1 1-2 pp., Surveying and Civil Engineer, July 1. 20 cts. 3 pp., Surveyor, July 1. 20 cts. 2 pp., Contract Journal, June 29. 20 cts. 4 pp., Water, July 15. 20 cts.

Electricity in the Construction of the Los Angeles Aqueduct. Illustrated, 2 pp., Engineering Record, July 16. 10 cts.

Placing Concrete, Gravity System of. 1-4 p., Municipal Journal and Engineer, July 13. 10 cts.

Fire Department, Boise, Ida. By J. H. Stephenson. Illustrated, 3 pp., Fireman's Herald, July 2. 5 cts.

High-Pressure Fire Protection System at Oakland, Cal. Illustrated, 2 2-3 pp., Engineering Record, July 23. 10 cts.

Collapse of Gravity Tanks on Roofs. 18 pp., Insurance Engineering, July. 25 cts.

BOOK REVIEWS

Municipal Administration and Accounting.

By Frederick A. Cleveland. Published by Longmans, Green and Company, New York City. 361 pages. Price \$2.00 net.

The author of this book is the Director of the Bureau of Municipal Research, and as such has had unusual facilities for investigating municipal administration methods and accounting systems, especially in New York City. The reasons given by him for the publication of the book are that there is at present little literature available on the business aspects of government, that a number of papers and addresses prepared by the author are repeatedly asked for but are out of print; and that these disclose a historical relation to the work of the National Municipal League, of the Census Bureau and of the Bureau of Municipal Research. The book is in reality a collection of twenty-one articles and addresses on various subjects relating to the matter covered by the title. The author believes that "although prepared for many popular and successful bodies, differing widely in their special interest to the his-

torian and publicist, and more particularly to the beginner, there may be a significance in these fragments that a systematic treatise could not have at this time of pioneer work and pioneer thinking toward constructive municipal reform." Among the addresses are ones entitled "The Genus Grafter," "The Financial Management of Municipalities," "A Business Man at the Head of a City's Business Office," and "An Agency of Citizen Inquiry—The Bureau of Municipal Research." Some of the papers have appeared in Leslie's Weekly, the New York Sunday World, The Journal of Accountancy, The Political Science Quarterly. Others are papers before societies, such as the National Municipal League, and reports to the various officials of New York City, suggesting accounting methods for certain of the departments of the city government.

No attempt has been made to connect these by new matter into a homogeneous whole or point out any logical sequence of relation of one to the other. In general, however, the more popular discussions are presented first, the first three chapters dealing with graft, the next "What We Do Not Know About the Affairs of Our Cities," and practically all of the others either discussing municipal franchises as a whole or giving fairly comprehensive treatises on particular branches thereof. The first part gives the author's ideas as to what is wrong with our municipal governments generally. The last one-half or two-thirds of the book is of special interest to city comptrollers and others who are engaged in the actual practice of municipal accounting.

Sea Water Distillation. A practical manual, with a description of the machinery necessary for the process. By Frank Normandy, Barrister-at-Law. Published by Chas. Griffin & Co., Ltd., London. 232 pages, 25 illustrations. Price \$2.00 net.

This book deals with the distillation of salt water and incidentally with water which may not be salt. The author has endeavored to introduce as few technical terms as possible, and while the book cannot be called elementary, it requires a knowledge of only the more commonly understood principles of physics as a preparation for the study of it. After treating generally of distillation the author discusses the composition of sea water and other salt waters. He then takes up the matter of generation of steam and the fuels used therefor. Following this he describes the general principles of the evaporator and of the distilling condenser, including multiple distillation. He considers distilling apparatus for vessels and those better adapted for land stations. Each of these subjects is treated quite fully.

Hand-Book of Cost Data, for Contractors and Engineers. By Halbert P. Gillette. Second edition. 1854 pages. Published by Myron C. Clark Publishing Co., Chicago. Price \$5 net.

This second edition of a work, the first edition of which was published five years ago, has had a large sale, and is about four times the size of the first. The new matter is largely taken uncondensed from the technical paper of which the author is editor. There is undoubtedly a demand for cost data by engineers and contractors. To the latter, ability to forecast the cost of doing certain work is a necessary prerequisite of financial success; and accuracy of "preliminary estimates" is a very important element in the professional success of many, especially of the younger engineers.

In a work containing such a mass of valuable data, ability to conveniently and rapidly find what is wanted is of the utmost importance, and this appears to us to be the weak feature of the book. The amount of matter in it is overwhelming in its volume; to look through it all would stagger even the student, to say nothing of the practical man. But the index occupies only 12 pages, or one page for each 150 pages of text. It does not seem to us possible that a sufficient index can be contained in such space.

Still more serious is the absence of all attempt at condensing. Turning at random to "Process Treatment of Timber," we find five pages devoted to describing the processes (which are described in dozens of other books) followed by a quarter-page of costs.

The data contained in this book are of great value, we believe; but we hope the author will find time to "boil them down" to a half or third of the present volume in a future edition. If he should continue his past method of compilation the next edition will be twice as thick as the width of the page. A larger page and decreased thickness would add greatly to the convenience of use of this, which is essentially a reference book.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Johnstown	Aug. 12	Paving 15,000 sq. yds., curbing 8,000 lin. ft.	Village Clerk.
Ohio	Cincinnati	Aug. 12, noon	Shaping up Reading pike ready for oiling, Sycamore twp.	Fred Dreihls, Clk. Co. Comrs.
Ohio	Columbus	Aug. 12, 2 p.m.	Macadamizing Hilliard-Dublin road improvement.	John Scott, Clk. Co. Comrs.
Idaho	Boise	Aug. 12, noon	Grading, gravel, boulders, etc., Morris Hill Cem. road.	W. L. Cuddy, Clk. Co. Comrs.
Nebraska	Loup City	Aug. 12, noon	Constructing cement sidewalks.	Peter Rowe, City Clerk.
Missouri	Kansas City	Aug. 12, noon	Grading, macadamizing road south from Levee, \$43,110.	Board of County Commissioners.
New Hampshire	Concord	Aug. 12, 1 p.m.	Bldg. \$20,000 gravel road in Lynn; \$1,100 road in London.	H. C. Hill, State Engineer.
Pennsylvania	Steelton	Aug. 12, 7:30 p.m.	Replacing 6,000 ft. steel-bound granolithic curb, Front st.	Chas. P. Feidt, Boro. Sec'y.
Ohio	Zanesville	Aug. 12, noon	Brick paving, 1 mile, Springfield twp.; cost, \$12,517.	State Hwy. Comr., C. of Co. Comrs.
Indiana	Hammond	Aug. 12, 10 a.m.	Improving number of streets.	A. R. Ebert, Pres. Bd. Pub. Wks.
Wisconsin	Kenosha	Aug. 12, 2 p.m.	Bldg. 13,665 sq. ft. concrete sidewalks.	M. J. Scholey, Chm. St. Asses. Com.
Missouri	St. Louis	Aug. 12, noon	Improving number of streets.	W. B. Dryden, Sec'y Bd. Pub. Imp.
Nebraska	Lincoln	Aug. 12, noon	Grading 1,348 cu. yds.	R. C. Ozman, City Clerk.
Missouri	Webb City	Aug. 13, 5 p.m.	Curbing portion of Daugherty st.	A. J. McKenzie, City Engineer.
New York	Mt. Pleasant	Aug. 13, 10 a.m.	Permanent improvement of 1.34 miles Albany Post road.	Edward P. Hennessey, Town Clerk.
Texas	Fairfield	Aug. 15, 4 p.m.	Bldg. system of county roads for Dist. No. 1.	R. L. Willford, County Judge.
California	Richmond	Aug. 15, 8 p.m.	Oil macadam paving, conc. curb and gutter, 9 blocks, Main st.	I. R. Vaughn, Clk. of Council.
Indiana	Danville	Aug. 15	Brick paving, concrete curb and gutter, cement sidewalks, Logan ave., cost \$20,000 and Douglas st., \$4,000.	Walter Wynn, City Engineer.
Illinois	Ft. McKinley	Aug. 15, 10 a.m.	Bldg. service road, grading, etc., at fort.	Capt. Jas. F. Cohn, Constr. Q. M.
Maine	Decatur	Aug. 15	Brick paving on concrete, 2 streets; cost, \$27,000.	A. B. Alexander, City Engineer.
Maryland	Ft. Howard	Aug. 15	Grading macadam roads, concrete walks, etc., at fort.	Constructing Quartermaster.
New Jersey	Montvale	Aug. 15	Grading and macadamizing 2.205 miles road.	F. C. Lindeman, Mayor.
Illinois	Pekin	Aug. 15	Paving Second, Sixth and Elizabeth streets.	R. P. Van Dusen, City Engineer.
Pennsylvania	South Bethlehem	Aug. 15, 8 p.m.	Miesite paving on Telford base, Spruce st., 4th to 5th.	James L. Elliot, Chm. St. Com.
Dist. of Colum	Washington	Aug. 15, 2 p.m.	Grading and improving suburban streets and avenues.	C. H. Rudolph, Chm. Dist. Comrs.
Minnesota	Two Harbors	Aug. 15, 10 a.m.	Clearing and grubbing portion of country road.	John P. Paulson, County Auditor.
North Dakota	Cando	Aug. 15, 1 p.m.	Bldg. grade 80 rods long, six 2.5x30 ft., cor. steel culverts.	Frank Shanley, County Auditor.
Minnesota	Fairmont	Aug. 15, 11:30 a.m.	Bldg. Sec. 5, State Road No. 1.	H. P. Edwards, County Auditor.
Virginia	Lynchburg	Aug. 15, noon	Brick paving, 1,100 sq. yds.; tar macadam, 4,500 sq. yds.; broken stone, 2,000 cu. yds.; conc. curb and gutter, 3,600 lin. ft.; excav. 3,500 cu. yds.; granite crossings, 575 lin. ft.	H. L. Shaner, City Engineer.
Alabama	Montgomery	Aug. 15	Paving, 17,000 sq. yds.; sidewalks, 100,000 sq. ft.; curb, gutters, headers, storm water sewers, etc., 14 streets.	A. R. Gilchrist, City Engineer.
New Jersey	Metuchen	Aug. 15	Rebldg. 4,000 ft. stone road on Main st.	B. D. Ford, Chm. St. Com.
New York	Olean	Aug. 15, 7:30 p.m.	Brick paving on concrete, 4,000 sq. yds.; curb, 3,000 lin. ft.	Geo. J. Ball, City Engineer.
Nevada	Elko	Aug. 15, 9 a.m.	Bldg. 3 wagon roads and 3 bridges.	William Wilks, Co. Comr.
Tennessee	Memphis	Aug. 15	Asphalt paving, 8,000 sq. yds., etc., Madison and Cooper aves.	J. H. Weatherford, City Engineer.
Illinois	Nokomis	Aug. 15	Vit. brick paving 20 blocks.	W. R. McCaslin, City Engineer.
Illinois	Chicago	Aug. 15, 11 a.m.	Improving various streets.	A. F. Keene, Pres. Bd. Local Imp.
Illinois	Sterling	Aug. 15, 8 p.m.	Macadamizing 10 blocks with white rock.	F. G. Giffrow, Chm. Com.
Ohio	Youngstown	Aug. 15, noon	Grading two streets.	W. H. McMillan, Clk. Bd. Pub. Serv.
Michigan	Muskegon	Aug. 15, p.m.	Grade and pave Concord st.; three materials.	B. H. Tellman, City Recorder.
New Jersey	Woodbury	Aug. 16, 2:30 p.m.	Bldg. roads; three jobs.	W. C. Cattell, Wenonah, Co. Engr.
Illinois	Batavia	Aug. 16, 4 p.m.	Bldg. tar macadam pavement, Batavia ave.; cost, \$25,175.45; see Proposal Ad.	B. E. Sperry, Pres. Bd. Loc. Imp.
Missouri	Troy	Aug. 16, noon	Bldg. 14 miles grade road in Lincoln Co. for Road Co.	H. F. Childes, Sec'y T. & A. Road Co.
New York	Ft. Totten	Aug. 16, 2 p.m.	Macadam road, 6,295 sq. yds., conc. walk 713 sq. ft., 32 steps.	Capt. M. G. Spinks, Constr. Q. M.
Maine	Greenbush	Aug. 16, 2 p.m.	Bldg. sand, clay and gravel road 9,732 ft. long in Greenbush.	A. Folsom, Olancon.
Maine	Gardiner	Aug. 16, 2 p.m.	Bldg. section of State road, 1,200 ft. long.	Chas. H. Gray, Mayor.
Maine	Farmingdale	Aug. 16, 2 p.m.	Bldg. section of State road, 700 ft. long.	A. C. Stilphen, Gardiner.
Pennsylvania	Harrisburg	Aug. 16, noon	Brick or asphalt paving, 7,300 sq. yds.; granite, granolithic or steel-bound granolithic curb, 51,000 lin. ft. on 23 streets.	W. W. Caldwell, Hwy. Comr.
Ohio	Upper Sandusky	Aug. 16, noon	Grading and stoning a road.	Peter Frank, Jr., County Auditor.
New York	Albany	Aug. 16	Paving and curbing Vine street.	W. Greenalch, Comr. Pub. Wks.
Nebraska	Omaha	Aug. 16, 8 p.m.	Paving, any material, curbing, etc., 12 streets.	Dan B. Butler, City Clerk.
Indiana	Anderson	Aug. 16	Grading and macadamizing roads in 5 townships, 4.5 miles long, 16,611 ft., 13,253 ft., 7,963 ft. and 10,676 ft. long.	Wm. T. Richards, County Auditor.
Delaware	Wilmington	Aug. 16, noon	Building about 12 miles macadam roads.	F. A. Price, Hwy. Comr.
Louisiana	Crowley	Aug. 16	Laying street crossings.	City Clerk.
Ohio	Toledo	Aug. 17, 10 a.m.	Grading, draining, macadamizing Point Place road.	Chas. J. Sanzenbacher, Co. Auditor.
Indiana	South Bend	Aug. 17	Bldg. new and repairing defective walks and curbs.	O. C. Bastian, Pres. Bd. Pub. Wks.
Pennsylvania	Harrisburg	Aug. 17, 2 p.m.	Bldg. 15,000 ft. road; Carroll, 1,369 ft., Union twp., Wash. Co.	Jos. W. Hunter, State Hwy. Comr.
Alabama	Birmingham	Aug. 17, 11 a.m.	Bldg. 120,000 sq. yds., any suitable material.	Maury Nicholson, City Engineer.
Indiana	Indianapolis	Aug. 17, 10 a.m.	Grading and sidewalks, 2 streets; roadway of 3 alleys.	H. W. Klausmann, City Engineer.
Ohio	Akron	Aug. 17, noon	Grade, drain, curb, sidewalks, Coburn and Voris sts.	J. W. Gauthier, Dir. Pub. Service.
Ohio	Canton	Aug. 17, noon	Brick paving, grading, 1,004 miles, Plain twp.; \$18,573.	State Hwy. Comr., C. of Co. Comrs.
Missouri	Kansas City	Aug. 18	Grade, macadam, Hill road; also Masten school road, 3.5 miles.	County Clerk.
Missouri	Millersburg	Aug. 18, noon	Grade, macadamize, 1.21 miles, 2 twps.; cost, \$9,481.	State Hwy. Comr., C. of Co. Comrs.
New York	Buffalo	Aug. 18, 11 a.m.	Paving 4 streets and repaving Eagle street, 40 ft. wide.	F. G. Ward, Comr. Pub. Wks.
Indiana	Ft. Wayne	Aug. 18, 7:30 p.m.	Five-ft. cement walks, grading, etc., Calhoun and Harrison sts.	H. W. Becker, Chm. Bd. Pub. Wks.
Pennsylvania	Monessen	Aug. 18	Vit. repressed block paving, 2,700 sq. yds., curb 2,200 ft.	J. A. Sheetz, Chm. St. Com.
Minnesota	Monterey	Aug. 18, 3 p.m.	Grading State Road No. 2; 15,650 yds. of earth and 11 corrugated and 4 concrete culverts.	County Board, Monterey Hotel.
Missouri	Toledo	Aug. 19, 10 a.m.	Repairing Lewis ave. macadam road, Washington township.	C. J. Sanzenbacher, County Auditor.
Iowa	Spencer	Aug. 19, 8 p.m.	Bldg. cement sidewalks.	R. L. Taylor, City Clerk.
Virginia	Roanoke	Aug. 19, noon	Bldg. granolithic sidewalks; F. L. Gibboney, City Engineer.	W. L. Craft, City Clerk.
Ohio	Dayton	Aug. 19, noon	Cement sidewalks in 17 streets and avenues, gravel 1 street.	J. C. Ely, Dir. Pub. Service.
Pennsylvania	Reading	Aug. 19, 2 p.m.	Bldg. 7,310 ft. of road.	J. W. Hunter, St. Hwy. Comr.
Virginia	Norfolk	Aug. 19, noon	Bldg. granolithic sidewalk on Jefferson st.	F. L. Gibboney, City Engineer.
Wisconsin	Racine	Aug. 20, 10 a.m.	Grading various streets; 2 contracts.	P. H. Connolly, Chm. Bd. Pub. Wks.
Utah	Ft. Douglas	Aug. 20, 10 a.m.	Bldg. roadways, concrete walks, drains, grading, etc.	K. P. Williams, Constr. Q. M.
Ohio	Toledo	Aug. 22, 10 a.m.	Grade, drain, macadamize road in Waterville twp.	C. J. Sanzenbacher, County Auditor.
Kentucky	Louisville	Aug. 22, 2 p.m.	Brick paving and improving 16 alleys.	C. Norton, Chm. Bd. Pub. Wks.
Ohio	Lockland	Aug. 22, noon	Bldg. artificial stone sidewalk, Dexter ave.	C. E. Troy, Village Clerk.
Kentucky	Paducah	Aug. 23, 3:30 p.m.	Granite curb, 24,720 lin. ft.; concrete gutter, 25,200 lin. ft.; concrete walks, 78,200 sq. ft.; concrete driveways, 5,430 sq. ft.; c.-i. drain pipe, 1,000 lin. ft.; sewer, 10-24 in., 1,215 ft.; culverts A, B, C and D, also 225 cu. yds. conc. retain. wall.	L. A. Washington, City Engineer.
Kentucky	Louisville	Aug. 23, 2 p.m.	Asphalt paving, vit. block gutter, curb, grade, 4 streets.	R. G. McGrath, Sec'y Bd. Pub. Wks.
Ohio	Cleveland	Aug. 24, 11 a.m.	Repairing Detroit road.	F. R. Lander, County Surveyor.
Ohio	Perry	Aug. 24	Paving 8,000 sq. yds. of miles of streets, price per sq. yd.	M. J. Bahin, City Engineer.
Florida	Ft. Mott	Aug. 25	Paving from 3 to 5 miles from Harrisonville to fort.	W. E. Battle, Mayor.
New Jersey	Cincinnati	Aug. 25, 11 a.m.	Improving oyster shell road from Harrisonville to fort.	Constr. Q. M., Ft. Dupont, Del.
Ohio	Cincinnati	Aug. 26, noon	Improving Harrison and New Haven road; \$3,000 bond.	Stanley Struble, Pres. Co. Comrs.
Wisconsin	Janesville	Aug. 26, 2 p.m.	Improve portions of 11 streets.	W. F. Carle, Chm. St. Asses. Com.
Utah	Ft. Douglas	Sept. 12, noon	Bldg. roads, walks, catch basins, etc.	K. P. Williams, Constr. Q. M.
Ohio	Euclid	Sept. 12, noon	Paving and improving Lawnview ave.	N. J. Brewer, Village Clerk.
California	Hermosa Beach	Sept. 23	Warrentite paving, on 5-in. bituminous concrete base, \$60,000.	E. McCoskey, City Clerk.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
SEWERAGE				
New York	Brooklyn	Aug. 12, 11 a.m.	Bldg. and repairing sewers in various streets.	A. E. Steers, Borough President.
Kansas	Hutchinson	Aug. 12, 3 p.m.	Bldg. sewers: 4,300 ft. 18-in. vit. or concrete tile, 3,500 ft. rectangular concrete drain, 2,000 ft. open ditch, inc. 1,500 cu. yds. excav.; G. L. McLane, City Engineer.	Ed. Metz, City Clerk.
Ohio	Akron	Aug. 12	Bldg. storm sewer in W. Main st. before paving.	Service Director Klein.
New York	Troy	Aug. 12	Bldg. 1,395 ft. 8-6-in. vit. drain pipe, Grace court, etc.	Jas. M. Riley, Sec'y Bd. C. & Supply.
Minnesota	Duluth	Aug. 12, 10 a.m.	Bldg. sanitary sewer in Third alley.	O. F. Olson, Pres. Bd. Pub. Works.
Ohio	Springfield	Aug. 12	Bldg. storm water sewers, W. Main st., cost, \$12,000.	M. J. Bahin, City Engineer.
Michigan	South Haven	Aug. 12, 7:30 p.m.	Bldg. 4,000 lin. ft. 8 to 10-in. sewers.	A. Ryall, City Clerk.
Wisconsin	Kenosha	Aug. 12, 2 p.m.	Bldg. sewer.	M. J. Scholey, Chm. St. Asses. Com.
New York	Rochester	Aug. 13, 10 a.m.	Bldg. sewage disp. plant, etc., new Tuberculosis Hospital.	Thos. J. Bridges, Chm. Co. Bldg. Com.
Iowa	Battle Creek	Aug. 15	Bldg. \$7,000 sewer system, of 6, 8 and 12-in. vit. pipe.	E. E. Carlson, Engineer.
Illinois	Danville	Aug. 15	Bldg. \$28,000 vit. pipe storm water sewer system in Germantown.	Walter Wynn, City Engineer.
Wisconsin	West Allis	Aug. 15	Bldg. 24,000 feet of sewers.	L. F. Fish, City Clerk.
South Dakota	Groton	Aug. 15, 8 p.m.	Bldg. sewer extension.	A. P. Fuller, City Auditor.
Illinois	Pekin	Aug. 15	Bldg. storm water and sanitary sewers; cost, \$141,000.	W. J. Conzelman, Mayor.
New York	Hudson Falls	Aug. 15, 7:30 p.m.	Bldg. 2,400 ft. of sewer in Notre Dame and North streets.	W. T. Gallagher, Chm. Sewer Bd.
Oregon	Salem	Aug. 15, 5 p.m.	Bldg. North and South Salem sewer systems.	W. A. Moores, City Recorder
Connecticut	New Haven	Aug. 15	Bldg. sewers in 3 avenues and 4 or more streets.	C. W. Kelly, City Engineer.
California	Tulare	Aug. 15	Bldg. \$68,000 sewer system; Haviland & Tibbetts, Oakland.	E. Oakford, City Clerk.
New Jersey	Haddonfield	Aug. 15	Extensions, etc., to disposal plant; bldg. sprinkling filter, settling tank and dosing chamber.	Alex. Potter, 114 Liberty St., N.Y.C. Town Council.
Indiana	Normal City	Aug. 15	Constructing a sewer in McKinley ave.	H. W. Klausmann, City Engineer.
Indiana	Indianapolis	Aug. 15, 10 a.m.	Bldg. local sewers in 5 streets.	W. H. McMillan, Clk. Bd. Pub. Serv.
Ohio	Youngstown	Aug. 15, noon	Sewering 3 streets.	C. W. Kelly, City Engineer.
Connecticut	New Haven	Aug. 15, 2 p.m.	Bldg. sewers on four streets.	W. L. Craft, City Clerk.
Virginia	Norfolk	Aug. 16, noon	Bldg. storm drain, Randolph st.	Geo. Hokenstad, City Auditor.
South Dakota	Canton	Aug. 16, 8 p.m.	Bldg. a sewer.	F. E. Crane, Supt. Sewer Comrs.
New York	Amsterdam	Aug. 17	Bldg. storm sewer in Norman st.	J. W. Gauthier, Dir. Pub. Service.
Ohio	Akron	Aug. 17, noon	Sewering Euclid ave. and many other streets.	J. C. Ely, Dir. Pub. Service.
Ohio	Dayton	Aug. 19, noon	Bldg. 4 storm water sewers: 450 ft. 3.5 ft. concrete sewer; 410 ft. 20-in. pipe, 1,520 ft. 18-in., 1,130 ft. 15-in., 1,625 ft. 12-in. pipe, etc., trench 0 to 10 ft. deep.	Pres. Willson, Bd. of Pub. Works.
Indiana	Marion	Aug. 19	Constructing North Marion sewer; also others later.	M. E. Bannon, City Engineer.
Iowa	Ft. Madison	Aug. 20	Bldg. 10,000 ft. sanitary sewer; cost, \$8,000.	Capt. P. Whitworth, Q. M.
Texas	Ft. Crockett	Aug. 22, 2 p.m.	Bldg. sanitary sewer system and pumping plant.	C. M. Conway, City Clerk.
Iowa	Shenandoah	Aug. 22	Constructing sewers in various streets.	Geo. W. Farr, Mayor.
Montana	Miles City	Aug. 22, 3 p.m.	Bldg. main and outfall sewers, sewage pumping and disposal plants; furn. and erect fully equipped air-lift system for sewage pumping, also for improving water and light systems.	H. H. Canfield, Village Clerk.
Ohio	Cleveland Hgts.	Aug. 23	Constructing pipe sewers.	A. H. Gilliland, City Engineer.
Iowa	Indianola	Aug. 23, 7:30 p.m.	Bldg. sanitary sewers: 6,447 ft. 10-in., 12,087 ft. 8-in. and 1,258 ft. 6-in. standard vit. sewer pipe; 33 common and 13 drop manholes; 9 flush tank siphons, set in manholes; 800 house connections, 328 manhole stops, 1/4x10-in. round iron.	W. L. Craft, City Clerk.
Virginia	Norfolk	Aug. 23, noon	Bldg. two sewers.	Chipman & Powers, Engrs., W'n'p'g.
Saskatchewan	Estevan	Aug. 24, 8 p.m.	Furnishing sewer pipe, also laying storm sewers.	W. F. Carle, Chm. St. Asses. Com.
Wisconsin	Janesville	Aug. 26, 2 p.m.	Improve three sewerage districts.	B. M. Cook, Village Clerk.
Ohio	Lakewood	Aug. 29, noon	Bldg. sewers in 2 streets.	H. L. Donaldson, Boro. Sec'y.
Pennsylvania	West View	Oct. 1	Bldg. main sewer and disposal plant, plans by Trimble & Miller, Fourth ave., Pittsburg.	
WATER SUPPLY				
Florida	Key West	Aug. 15, noon	Furn. 2 stand. Scotch stat. boilers and one condenser.	Wm. R. Porter, Chm. Bd. Pub. Wks.
Oklahoma	Bridgeport	Aug. 15	Extending w. w. system, bldg. new power house, one 25 h.p. 2-cylinder gaso. engine, 7x8 triplex single-acting pump.	City Clerk.
Ohio	Columbus	Aug. 15	Furn. f.o.b. city or along line of work: 1,000 tons c-i. pipe and 90 tons castings for Water Department.	H. S. Holton, Dir. Pub. Service.
Minnesota	Fergus Falls	Aug. 15	Sinking well, etc., in town of Buse, R. F. D. No. 7.	J. F. Neuman, Director.
Iowa	Monticello	Aug. 15, 8 p.m.	Furn. 16 4-in. gate valves, eight 4-in. fire hydrants and sixteen c-i. gate-valve boxes.	A. Kempf, City Clerk.
Illinois	Chicago	Aug. 15, 11 a.m.	Furn. c-i. valve basin and 5 cistern covers during year; also about 250 tons of hydrant and stop valve castings.	B. J. Mullaney, Commissioner.
Illinois	Oak Forest	Aug. 15, 1:30 p.m.	Erect well houses and drill wells, Oak Forest Infirmary.	Wm. McLaren, Chicago, Superintendent Public Service.
Minnesota	Chisholm	Aug. 17, noon	Bldg. 2 rein. conc. settling tanks.	E. J. Casey, Village Recorder.
Maryland	Baltimore	Aug. 17, 11 a.m.	Water supply system, tank, pumps, etc., for power house.	E. D. Preston, Inspector of Bldgs.
Illinois	Toulon	Aug. 18, 7:30 p.m.	Boring and drilling deep well.	H. B. Davis, City Treasurer.
Ohio	Steuvenville	Aug. 19, 1 p.m.	Bldg. conc. reservoir at County Infirmary.	S. M. Floyd, Clerk Co. Comrs.
Montana	Miles City	Aug. 22, 3 p.m.	Furn. mat. and extend, w. w., light and sewer systems.	J. E. Farnum, City Clerk.
Ohio	Euclid	Aug. 22, noon	Bldg. 6-in. water main in Lawnview ave.	Nelson J. Brewer, Village Clerk.
Washington	Ft. George Wright	Aug. 22, 11 a.m.	Sinking 10-in. tubular well.	Lieut. A. L. Sneed, Q. M.
Ohio	Cleveland Hgts.	Aug. 23, noon	Laying mains in 5 streets.	H. H. Canfield, Village Clerk.
Indiana	Rushville	Aug. 23, noon	Pumping machinery, tanks and tower.	A. T. Mahan, Supt. Water Plant.
Ohio	Barnesville	Aug. 23, noon	Furn. 750 ft. 4-in., 5,000 ft. 6-in., 1,400 ft. 8-in. water pipe, 8 hydrants, 2 4-in., 2 6-in. and 1 8-in. valves; also laying 6,550 ft. water pipe.	E. Wilson, Pres. Bd. Pub. Affairs.
New York	Keeseville	Aug. 25, 7 p.m.	Furn. 450 pieces 10-in. B. & S. c-i. pipe, class C, 850 lbs. per length; 11,000 lbs. pig lead, 1 ton specials, 1 stand. m. h. frame and cover, 22-24-in.; two 10-in. and one 4-in. gate valves and boxes; one 10x24-in. copper strainer; laying 5,300 ft. 10-in. pipe, etc.; rock excav., granite in reservoir, 1,604 cu. yds.; concrete in reservoir, 345 cu. yds., in manhole, 5.28 cu. yds.; 3,200 brick in manhole; 250 lbs. sundry iron work; W. G. Stone, Mann Bldg., Utica, Engr.	J. B. Mace, Pres. Water Bd.
Manitoba	Winnipeg	Aug. 25, 11 a.m.	Furn. mach. to drill in limestone wells 60 to 100 ft. deep.	H. N. Rutman, City Engineer.
New Jersey	High Bridge	Aug. 25	Bldg. addition to w. w.: 3 miles gravity main, reservoir and enlarging distributing reservoir, etc.	L. H. Dorland, Boro. Clerk.
Kentucky	Louisville	Aug. 26, 2 p.m.	Erecting 48 fire hydrants at specified points.	R. G. McGrath, Sec'y Bd. Pub. Wks.
Ohio	Toledo	Aug. 29	Bldg. intake crib improvement; cost, \$7,500.	G. W. Tonson, Ch. Engr., Bd. P. Ser.
Wyoming	Lovell	Aug. 29, 1 p.m.	Bldg. 60,000-gal. wood or steel tank on 40-ft. steel tower.	W. T. Lovell, Engr.-in-Charge.
Utah	Provo	Aug. 29, 3 p.m.	Changing water mains; cost, \$90,000.	L. C. Kelsey, Consulting Engineer.
Alabama	Opelika	Aug. 31, noon	Furnishing all material and bldg. complete water works and electric light system; J. B. McGarry Co., Empire Bldg., Atlanta, Ga., Engineers.	Mayor and Council.
North Carolina	Roxboro	Sept. 1	Water works improvements, \$2,500, inc. 1000 ft. pipe extension.	N. Lunsford, Mayor.
North Dakota	Grand Forks	Sept. 5	Reconstructing stone sand filter, constructing rapid sand filter.	C. J. Evanson, City Auditor.
BRIDGES				
Pennsylvania	Lock Haven	Aug. 12, 1 p.m.	Bldg. steel span bridge, Kreodone, block floor and concrete sub-structure and floor over creek at Keating.	Bd. Comrs. of Clinton County.
New York	Conklin	Aug. 12, 10 a.m.	Repair abuts. and pier of bridge over Susquehanna river.	Frank Stanford, C. of Town Clerk.
Ohio	Saltillo	Aug. 12, 10 a.m.	Constructing superstructure.	G. T. Drake, Bridge Comr.
Illinois	Atkinson	Aug. 12, 2 p.m.	Bldg. bridge, conc. abutments, cost, \$4,225.	Carl Lager, Genesee, Chm.
Wisconsin	Morrison	Aug. 13	Bldg. rein. conc. bridge, masonry abutments.	T. E. Dorsy, Chm. Town Board.
Illinois	Belvidere	Aug. 13, noon	Bldg. bridge in Flore township.	B. F. Craig, Kirkland, Clerk.
Illinois	Collinsville	Aug. 13, 8 p.m.	Bldg. rein. conc. bridge, Collinsville township.	County Clerk.
Indiana	Liberty	Aug. 13, 1 p.m.	Constructing arch concrete bridge.	Clinton Gardner, County Auditor.
Pennsylvania	Bellefonte	Aug. 13	Bldg. 2 steel bridges with rein. concrete floors, College and Union townships; also rein. concrete arch.	Jacob Wooding, Chm. Co. Comrs.
Ohio	Newark	Aug. 15, 1 p.m.	Bldg. sub. and superstructures of various bridges.	Fred S. Cully, County Surveyor.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES (Continued)				
Michigan.....	Grover.....	Aug. 15, 2 p.m.....	Bldg. bridge between towns of Lake and Grover.....	J. A. Tiedjens, Town Clerk.
Minnesota.....	Randolph.....	Aug. 15, 10 a.m.....	Bldg. 160-ft. bridge, 16 ft. roadway, 2 conc. abutments.....	Co. Comrs., C. of Village Bd.
Nevada.....	Elko.....	Aug. 15, 9 a.m.....	Bldg. 3 bridges and 3 wagon roads.....	A. G. Dawley, County Clerk.
Ohio.....	St. Clairsville.....	Aug. 15, 1 p.m.....	Bldg. rein. conc. substructure, conc. top bridge.....	E. E. Shepherd, County Auditor.
Indiana.....	Anderson.....	Aug. 16.....	Bldg. 5 rein. concrete and steel bridges near city.....	A. Smith, County Engineer.
Ohio.....	Jefferson.....	Aug. 16, 1 p.m.....	Constructing reinforced concrete beam bridge.....	A. V. Hillyer, Clerk, Comrs.
Maryland.....	Baltimore.....	Aug. 17, 11 a.m.....	Bldg. steel and concrete bridge over Jones' Falls at Pratt st.; \$1,000 check; O. F. Lackey, Harbor Engineer.....	J. Barry Mahood, Chm. Bd. Awards. County Clerk.
Illinois.....	Ottawa.....	Aug. 17, 2 p.m.....	Bldg. rein. conc. bridge, Rutland township.....	H. A. Pfister, County Clerk.
California.....	San José.....	Aug. 18.....	Bldg. rein. conc. bridge over gulch.....	H. H. Harmon, County Auditor.
North Dakota.....	Mandan.....	Aug. 18, 10 a.m.....	Bldg. 7 bridges, 16-80 ft. long, on concrete abutments, etc.....	Stanley Struble, Pres. Co. Comrs.
Ohio.....	Cincinnati.....	Aug. 19, noon.....	Constructing concrete bridge.....	S. F. Ewing, Chm. Co. Comrs.
Pennsylvania.....	Beaver.....	Aug. 20, 10 a.m.....	Bldg. concr. bridge over Crow's river.....	County Commissioners.
Pennsylvania.....	Waynesburg.....	Aug. 21.....	Bldg. conc. bridge across Smith Creek road.....	John Dollinger, Township Clerk.
Illinois.....	Minooka.....	Aug. 22, 2 p.m.....	Bldg. rein. conc. bridge, Troy township.....	S. J. Bennett, Mayor.
Iowa.....	Ft. Dodge.....	Aug. 22, 7:30 p.m.....	Bldg. metal viaduct, 823 ft. long, sub. and super. complete; also remove old and erect new 330 ft. steel superstructure.....	F. M. Williams, State Engr., Albany.
New York.....	Oswego.....	Aug. 23, noon.....	Bldg. bridge over Oswego Canal; cost, \$39,735.....	Wm. H. Strine, County Clerk.
Pennsylvania.....	York.....	Aug. 25, 11 a.m.....	Removal of present College ave. bridge and erection of entire new one or alteration and repair of present one.....	Dr. O. O. Fordyce, State Hospital.
Ohio.....	Athens.....	Aug. 25.....	Standpipe, two 150 h.p. hori. tubular boilers and steam piping for improving water supply system at State Hospital.....	L. K. Jones, Sec'y Dept. Rys. & Can.
Montreal.....	Quebec.....	Sept. 1, noon.....	Bldg. Quebec bridge superstructure; \$500,000 check.....	E. Felix Lipscomb, County Superv.
South Carolina.....	Gaffney.....	Sept. 5.....	Rebldg. steel approaches on concrete base, repair bridge, etc.....	J. W. Niehaus, County Clerk.
Kansas.....	Leavenworth.....	Sept. 5, noon.....	Bldg. two bridges and replacing Bridge No. 20.....	
LIGHTING AND POWER				
Indiana.....	Indianapolis.....	Aug. 13, 10 a.m.....	Install. 6 lamp poles, Marion Co. court house.....	Albert Sahn, County Auditor.
Wisconsin.....	Brownstown.....	Aug. 17.....	Furn. and install. 25 h.p. gaso. engine, belt-con. to 18 1-2-kw. generator; furn. and erect. pole line, in running order; \$2,800.....	Village Clerk.
Maryland.....	Baltimore.....	Aug. 17, 11 a.m.....	Erecting power house, furn. and install. generators, switchboard and wire, boilers, piping, etc.....	E. D. Preston, Inspector of Bldgs.
Indiana.....	South Bend.....	Aug. 17, 7:30 p.m.....	Bldg. 1,100 ft. of conduit wiring, 11 light posts, etc.....	A. P. Perley, Chm. Park Comrs.
Montana.....	Miles City.....	Aug. 22, 3 p.m.....	Furn. material and extending light, water and sewer systems.....	J. E. Farnum, City Clerk.
Saskatchewan.....	Estevan.....	Aug. 24, 8 p.m.....	Power house, 2 return tubular boilers, high-speed steam engine, electric lighting system; also sewers.....	J. G. Hastings, Mayor.
Ohio.....	Cleveland.....	Aug. 24, 2 p.m.....	Electric current for lighting and power, also steam for heating new Court House for 6, 8 and 10 years.....	Court House Bldg. Comm.
Alabama.....	Opelika.....	Aug. 31, noon.....	Furn. material and bldg. water works and elec. light system.....	Mayor and Council.
Manitoba.....	Winnipeg.....	Sept. 1, noon.....	Furn. and installing 46,000 ft., 13,000-volt, 3-core cable.....	M. Peterson, Sec'y Bd. Control.
MISCELLANEOUS				
New York.....	Rochester.....	Aug. 13, noon.....	Furnishing 69,500 bulbs for Board Park Commissioners.....	M. O. Stone, Sec'y Park Board.
Kentucky.....	Dayton.....	Aug. 15, 8 p.m.....	Franchise, 20-year, to construct conduits, erect poles, string wires, for telephone service; to highest and best bidder.....	Will C. Martin, City Clerk.
Pennsylvania.....	Chester.....	Aug. 15, 8 p.m.....	Furn. 55 ft. aerial truck.....	J. K. Hagerty, Chm. Fire Com.
New Jersey.....	Jersey City.....	Aug. 15, 8 p.m.....	Bldg. fire house, Van Nostrand and Bergen aves.....	Chas. Esterbrook, Clk. Fire Comrs.
Delaware.....	Wilmington.....	Aug. 16, noon.....	Rebuild eastern end of centre crib; sheathing Churchman's bridge, etc.....	Jas. Wilson, County Engineer.
Indiana.....	South Bend.....	Aug. 17, 7:30 p.m.....	Bldg. 1,100 lin. ft. concrete balustrade along river wall of Howard Park, furnishing 11 light posts, bldg. 1,100 ft. conduit for wiring, switches, etc.....	F. C. Winkler, Chm. Park Board.
New Jersey.....	Westfield.....	Aug. 18.....	Erecting fire house; cost, \$20,000 complete; old bids too high.....	Town Council.
Florida.....	Jacksonville.....	Aug. 24.....	Dredging and removal of rock in Biscayou Bay.....	Geo. R. Spalding, Capt. U. S. Engrs.
New York.....	Ithaca.....	Aug. 25, 3 p.m.....	Bldg. additions to N. Y. State Veterinary College, Cornell University, (see "proposals:") E. L. Williams, Treas.....	F. B. Ware, State Architect.
Massachusetts.....	Boston.....	Sept. 2, noon.....	Bldg. stone wharf, Pier No. 6, South Boston, 1,200 ft. long, 300 ft. wide, inc. 414,600 cu. yds. dredging, 274,600 cu. yds. fill; furn. 94,000 cu. yds. gravel, 40,200 cu. yds. rip-rap and stone ballast, 1,295 spruce piles, 730 cu. yds. concrete, 45,750 cu. yds. stone masonry below and 14,100 above low water, 95 lin. ft. bulkhead, 2,700 lin. ft. fenders on face of wall.....	State Bd. Harbor Comrs.
Dist. of Col'bia.....	Washington.....	Sept. 3, noon.....	Furn. and placing rip-rap or cobblestone on seawall Anacosta riv.....	W. C. Langfill, Col. U. S. Engrs.
New York.....	Albany.....	Sept. 6, 3 p.m.....	Bldg. new fire-truck house at Marshall st. and Del. ave.....	M. T. Reynolds, Arch., 100 State st
Indiana.....	Huntington.....	Sept. 19, 10 a.m.....	Improving county jail.....	J. W. Weaver, County Auditor.

STREET IMPROVEMENTS

Birmingham, Ala.—Jefferson County is having plans prepared for construction of roads; \$12,000 is available.

Decatur, Ala.—Contracts will soon be let by County Commissioners for construction of several additional miles of turnpike.

Selma, Ala.—County Commissioners have ordered building of new road in southern part of county.

Union Springs, Ala.—Bullock County has voted \$60,000 bond issue for road construction.

Chico, Cal.—Bids will be received August 24 for \$55,000 street improvement bonds.—B. F. Hudspeth, City Clerk.

Riverside, Cal.—County Board of Supervisors has adopted resolution to grade, macadamize and oil four miles of the Box Spring Grade road; cost \$30,000.

San Diego, Cal.—Council has ordered construction of cement sidewalks and curbs on Ivy st., North ave. and Albatros st.—J. T. Butler, City Clerk.

San José, Cal.—Board of County Supervisors has passed a resolution providing for construction of mountain drive.

Florence, Col.—County Commissioners are planning to grade a new road one mile southwest of Penrose to connect with the Pueblo road.

Fort Collins, Col.—Larimer County Commissioners have decided to call for bids for construction of scenic highway from city to Estes Park.

Wilmington, Del.—Levy Court, of New Castle County, is preparing to ask for bids on \$80,000 good road bonds.

Lawrenceville, Ga.—Gwinnett County will vote Aug. 23 on \$200,000 bonds for road improvements.

Twin Falls, Ida.—Committee of Commercial Club and Automobile Club have made

arrangements for construction of 16 miles of good roads; county is to pay one-third the cost of work.

Bloomington, Ill.—Board of Local Improvements has directed City Engineer Elmer Folsom to advertise for bids for one-half mile of vit. block pavement, concrete curb and gutter, with 6-in. concrete foundation.

East St. Louis, Ill.—Council has referred to Ordinance Committee resolution for improvement of State st. at cost of \$227,000.—Silas Cook, Mayor.

East St. Louis, Ill.—Council has decided to improve Kansas ave. at cost of \$8,500.

Decatur, Ill.—Cost of proposed street paving has been estimated at \$158,896.

Sterling, Ill.—City proposes to pave Wallace st.; cost about \$9,000.—John D. Arey, City Engineer.

Quincy, Ill.—Board of Local Improvements has ordered the paving of four streets.

Evansville, Ind.—Board of Works has decided not to award contract for repairing Fulton ave. Western Asphalt Co. was only bidder, \$4,000 with three-year guarantee; it also offered to replace the asphalt surface for \$1.25 sq. yd.

Jasper, Ind.—Bids will be received Sept. 10 by Jos. Gerber, County Treasurer, for \$26,200 paving bonds.

Hutchinson, Kan.—At least \$2,000 will be spent in improving roads, bridges and culverts in Reno Township this year.

Lawrence, Kan.—Council is considering paving of Quincey and Hancock and Lee sts., city to pay cost of laying foundation, amounting to about \$3,000.

New Orleans, La.—Committee on Budget and Assessment has approved ordinances providing for street paving in various sections of city; North Claiborne, \$41,000; Soniat, \$20,000; Erato, \$56,000; Cromwell

pl., \$11,200; Jeannette, \$23,000; Rendon, \$18,400; Seventh, \$16,500; Octavia, \$4,800; Elm, \$28,800; Carondelet, \$9,000; Pine, \$16,000; North Cortez, \$6,800; Dryades, \$19,520; Milan, \$46,000.—W. J. Hardee, City Engineer.

New Orleans, La.—City Engineer Wm. J. Hardee has completed plans and specifications for subsurface drains in connection with the paving of Joseph st., from Prytanla to Hurst st., with creosoted wood blocks; also in Hurst st., from Joseph st. to the Exposition Blvd., and Prytanla st., from Robert to Joseph st., with creosoted wood blocks, and for the erection of a concrete sea wall at West End, and also plans and specifications for the filling in with earth between the same and the existing revetment.

Brunswick, Md.—Citizens have voted \$5,000 street bonds.

Brookhaven, Miss.—Board of Aldermen has adopted order petitioning Federal authorities through Congressman W. A. Dickson for services of a competent civil engineer to plan for permanent streets in city and roads in Beat 1 of Lincoln County; it is proposed to issue \$30,000 city bonds for purpose, to be supplemented by district bonds for building the country roads.

Charleston, Miss.—Tallahatchie County will issue \$50,000 bonds to construct highways in Fourth and Fifth districts.

Jackson, Miss.—City proposes to pave N. State st. with wood block, bitulithic or mineral rubber.—B. H. Klyce, City Engineer.

Kansas City, Mo.—Council has decided to pave Locust st. and repair paving on 8th and May sts.

Kansas City, Mo.—Engineer R. T. Proctor, of Jackson County, has prepared estimate of cost for construction of about four miles of road on the White Cloud School-house road.

Omaha, Neb.—Paving of 11th st. is being considered.

Hackensack, N. J.—Improvements to cost \$75,000 are to be made to roads in Bergen County.

Haddonfield, N. J.—Council has adopted resolution for issuance of \$130,000 bonds for paving streets.

Trenton, N. J.—Council has decided to continue paving on Princeton ave., from Paul ave. to city limits, and pave State st. with flibertine; paving of West End ave. with macadam, Whither ave. and Kossuth st. with flibertine and Kent st. is being considered.

Dolgeville, N. Y.—Village Board has voted \$20,000 bonds for street improvements.

New York, N. Y.—Contracts will soon be let for paving 11th ave. from 34th to 42d st. with stone block pavement; cost \$120,000.—Geo. McAneny, Borough President.

Schenectady, N. Y.—Council has decided to lay sidewalks on Willet st. and Euclid ave.—Daniel Taylor, Jr., Corporation Counsel.

Akron, O.—Council has passed ordinance for issuance of \$41,620 bonds for street improvements and \$2,525 for improvement of Portage Park and Bucktel ave.

Dayton, O.—Dayton Savings and Trust Co. has purchased \$8,300 bonds for paving street intersections.

Defiance, O.—Road improvement in Defiance County, all bids rejected.

Defiance, O.—Macadamizing and paving of Harrison st. is being considered.

Springfield, O.—Paving of West Main and East High sts. is being planned.

Tiffin, O.—Council has passed ordinance authorizing the paving of Ann, Rebecca and Noble sts. with brick and Market st. with Tarvia or Westrumite; total about 12,000 sq. yds.

Nowata, Okla.—Nowata County has voted \$100,000 road and bridge bonds.

Baker City, Ore.—Council has adopted a resolution providing for the improvement of portions of Second st. by paving with Warren's bitulithic pavement; cost \$61,170.

Portland, Ore.—Council has passed resolutions providing for improvement of a portion of the following streets: Paving with asphalt, Morris st., \$7,958; Russell st., \$7,936; Sacramento st., \$6,727; San Rafael st., \$6,739; East 9th st., \$17,899; East 24th st., \$23,926; Union ave., \$15,375; East Pine st., \$3,795; East 16th st., \$36,812.

Big Springs, Tex.—Citizens of this county are agitating bond issue for permanent improvement of county roads.

Dallas, Tex.—Bids are invited for paving Main st. from Houston to Water st., probably with brick; also for paving with brick or creosoted pine block, Griffin st., from Pacific ave. to Cochran, and Camp st., from Akard to Gamar; plans, etc., are also being prepared for paving 10,000 lin. ft. of Haskell ave., Harwood, Pearl st., College Lane and various other thoroughfares.

Paris, Tex.—Council has appropriated \$71,000 for streets and sidewalks.

Puyallup, Wash.—Plans have been prepared for pavement of Stewart st. and Margaret ave.

Ephraim, Utah.—County will expend \$3,000 in improvement of roads.

Spokane, Wash.—Council has passed ordinances for grading, curbing, parking and sidewalk number of streets.

Tacoma, Wash.—Board of County Commissioners has decided to build scenic drive along bluff on east side of Commencement bay at cost \$47,000.

Beloit, Wis.—Council will expend \$20,000 next year for about 4,000 ft. of paving.

Janesville, Wis.—Bids will be received in about 20 days for 7,000 yds. of asphalt macadam paving.—C. V. Kerch, City Engineer.

Madison, Wis.—Capitol Building Commission has adopted final plans for the approaches, drives and walks in the park surrounding the new State house.

Superior, Wis.—Bids will be received by Douglas County for covering roadway on Tower ave. with broken stone and repairing bridge.—C. J. Morisset, Commissioner of Highways.

Mooselaw, Sask., Can.—Citizens have voted \$20,000 for road improvements and \$12,000 for concrete sidewalks.

CONTRACTS AWARDED

Berkeley, Cal.—To Contra Costa Constr. Co. for constructing roads around campus, \$33,100.

Pasadena, Cal.—To J. C. Kinsman, for laying sidewalk on Catalina ave., \$420.75; to J. E. Haddock, for grading, oiling, curbing and guttering of Chester ave., \$6,622.20; to J. C. Kinsman, for grading, curbing and guttering of Summit ave., \$10,208.12; to Peter Gebovack, sewer on Garfield ave. and Grand View, \$1,595; to J. E. Haddock, for laying sidewalk on Chester ave., \$2,114.70; to B. A. Shirar, for laying sidewalk on Douglas st., \$285; to J. C. Kinsman, grading, oiling, curbing and guttering of Kirkwood ave., \$2,346.21; to same, for

grading, curbing and guttering of Catalina ave., \$1,420; to B. A. Shirar, for curbing and guttering of Esther st., \$758.62.

Riverside, Cal.—To A. L. Winters, for paving portion of 1st st., \$17,597.

Quincy, Cal.—Construction of five miles of road, to E. M. Green, Clio, \$4,995.

Denver, Col.—Alley Paving Districts No. 23 and No. 24, to Hekert & Muller, \$12,965 and \$16,995, respectively.

La Junta, Col.—To L. C. Swink, for work on Santa Fé trail east of Rocky Ford, 77,000 cu. yds. of excavation, 11½¢ per cu. yd.

East Moline, Ill.—Paving with brick, 13th st., distance about three-fourths of a mile, to the Northwestern Construction Co., Davenport, \$15,279.

East St. Louis, Ill.—Improving Parsons ave. to Walter Coonan, \$5,891; Converse ave. to same, \$22,696.60.—Silas Cook, President, Board of Local Improvements.

Marion, Ill.—Brick paving 18,035 sq. yd. to Valentine Wolf, Alton.

Bloomington, Ind.—To George T. Miller, Lebanon, pave Walnut and Sixth sts., Bloomfield brick, and to C. M. Kirkpatrick, Kokomo, College ave. and Kirkwood ave., Martinsville brick.

Bluffton, Ind.—Stone roads, Risley stone road, to Abe Heshner, \$5,550; Weisbrody stone road, to Abe Heshner, \$5,000; Elick stone road, to Jackson & McCarty, \$4,680.

Huntington, Ind.—Building brick road, to L. A. Hutzel, \$3,297.

Indianapolis, Ind.—Street improvement work, cement walks on Temple ave. to Wm. H. Hall, city; cement walks on Washington blvd. to John Arnold, city; bitu-mass pavement on 36th st., Indianapolis Bitu-Mass Co., city; resurfacing with brick on Meridian st., to L. J. Cooper, city; resurfacing with brick on Georgia st., Marion County Construction Co., city.

Newcastle, Ind.—Paving two streets with brick, to Jas. Garvey, city, \$7,167.63; North 11th st. with bitulithic, to Western Construction Co., \$11,538.19.

South Bend, Ind.—Grading So. Michigan st., to John G. Young, Laporte, 22c. cu. yd.

Corning, Ia.—Paving with brick to Hamilton & Schwartz Co., Shenandoah, \$1.95 per sq. yd.; total, \$60,000.

Lexington, Ky.—Oiling county roads, to Home Construction Co., \$3.35 per 100 gals.

Louisville, Ky.—Constructing pavement on the following streets, to Barber Asphalt Co., Virginia ave., Beach to 32d st., \$1.82 per sq. yd.; Euclid ave., 18th st. to 21st st., \$1.82 per sq. yd.; 29th st., Kentucky to Greenwood, \$1.90 per sq. yd.; Brook, A to Lee, \$1.80 per sq. yd.; 22d st., Date to Oak, seven blocks, each \$1.80 per sq. yd.; Woodland, Beach to 32d st., two blocks, each \$1.95 per sq. yd.

Havre de Grace, Md.—Construction of 3½-mile road from Havre de Grace to Aberdeen, to Havre de Grace Construction Co., \$30,000.

Boston, Mass.—Construction of brick block pavement on Dudley st., to James Doherty for \$25,552; paving of Geneva ave., from Bowdoin to Park st. in Ward 20, to Contractor Timilty, \$23,567; other bidders for the work included James Doherty, \$23,727.80; C. W. Dolloff & Co., \$23,865.90; Joseph B. O'Rourke & Co., \$24,678.20; F. S. & A. D. Gore Corporation, \$25,206.10, and Coleman Bros., \$25,809.50.

Haverhill, Mass.—Constructing three miles of macadam road, to Richard F. Hudson, 19 Whittier st., Melrose; bids compared on basis of quantities in section from Martin's to Lake st., about one mile, 950 cu. yds. earth excavation at 50c., \$475; 100 cu. yds. borrow \$1,100; 9,000 sq. yds. surfacing at 2c., \$180; 2,100 tons broken stone in place, \$1.55, \$3,255; 160 ft. 8-in. pipe, 50c., \$80; 200 ft. fencing, 40c., \$80; five catch basins, \$40, \$200; 5 cu. yds. concrete, \$10, \$50; removing watering trough, \$25; total \$4,445 for one mile, or about \$13,335 for whole.

Crystal Falls, Minn.—To P. McDonnell, Duluth, for paving main street of Crystal Falls with Donnellite, \$2.37 per sq. yd.

Eveleth, Minn.—To William Kilbride, city, for laying of cement walks this summer; bids, bidders for cement walks per sq. ft. for roadways and crossings per sq. ft. and for curb and gutter per lin. ft., follow: William Kilbride, city, 12c., 15c., 55c.; Lanner Bros., Minneapolis, 13c., 15c., 55c.; F. Carlson, Decorah, 13c., 15c., 55c.; H. L. Bartlett & Co., Virginia, 13c., 20c., 57½c.; Occidental Construction Co., Minneapolis, 11½c., 14½c., 53c.; Holm & Shea, city, 14c., 19c., 72c.; S. C. Christensen, Cambridge, Wis., 12½c., 17c.; Myrmo Brothers, Sioux Falls, S. D., 12c., 16½c., 54½c.; J. D. O'Connell, Duluth, 15c., 20c., 80c.

Winona, Minn.—Paving 4,850 sq. yd. vit. brick block to John Deanan, \$1.37 per sq. yd.; reselling 400 lin. ft. stone curb to Otis Abell, 8c.; selling 1,800 lin. ft. new stone curb to same, 25c.

St. Louis, Mo.—Paving as follows: With asphalt, Rosalie, Newcomb, Cote, Brillante sts. and Newcomb pl. to Trinidad Asphalt Mfg. Co., \$22,568; with brick, McLaren st., to John B. Turner, \$6,566; with brick, Here-

ford st., with telford, Stanley st., to Webb-Kunze Contr. Co., Fullerton Bldg., \$17,413; with brick, Glasgow st., to John McMahon, Wainwright Bldg., \$25,076; with brick, Keokuk, Louisiana sts., and with telford, Grand st., to Ruecking Constr. Co., Marine ave. and Gasconde st., \$109,016; brick, Slatery, 19th sts., to Wm. H. Redemeyer, \$15,703; with brick, 8th, Pennsylvania, 10th, 11th, Ohio, to Wm. R. Bush Constr. Co., 211 N. 7th st., \$48,973; with brick, Biddle, Elliott, 13th and Forest sts. to Skranka Constr. Co., 319 N. 4th st., \$45,372; with telford, Grand st., Kings Highway, to G. Eyerma & Bro., 1216 S. Grand ave., \$24,972; with telford, Habsburger st., to Harry F. Heman, 721 Olive st., \$4,525; with bitulithic, N. Market and Mississippi sts., to Granite Bituminous Paving Co., \$31,415.

Elizabeth, N. J.—To James J. Potts, for paving Madison ave. with metropolitan block pavement, \$11,175.04.

Freehold, N. J.—Road work as follows: Third section of Adelpia-Lakewood road, distance 2½ miles, to Richard Haseman, Farmingdale, \$6,901; Red Bank-Holmdel road, 1½ miles, to Monmouth Construction Co., Red Bank, \$13,421; Allentown-New Egypt road, 2 miles, to J. L. Lecompt, Lakewood, \$13,960.

Long Island City, L. I., N. Y.—Regulating and laying sidewalks and curbing on Paynton ave., \$16,972, 17th ave. from Flushing to Grand aves., \$10,037, and 14th ave. at \$6,316, to Astoria Contr. Co.; grading and paving with asphalt blocks Newton ave., to Barber Asphalt Paving Co., 29 6th st., \$43,448; regulating and laying sidewalks on 18th ave., \$17,897, 4th ave., \$21,258, and 17th ave., between Jackson and Grand aves., to Peace Bros., 20 Main st.; regulating and laying sidewalks in Ely ave., \$5,309, and 5th ave., \$24,821, to Jos. A. Boyce, 9 Jackson ave.

Schenectady, N. Y.—Paving Chrisler ave. and Pleasant st., to Union Paving Co.; asphalt and brick will be used.

Schenectady, N. Y.—Grading, curbing and paving South Ferry st., to the Schenectady Contracting Co., excavation, 56c. per cu. yd.; asphalt, \$2.20 per sq. yd.; brick laid, \$2.42 per sq. yd.; curbing, 98c. per ft.; water taps, \$7.50 each; water connections, 64c., and sewer connections, 64c.; only other bidder, Union Paving Co.; sidewalks, to Thomas R. Crane, Raymond st., 74c. per lin. ft.; other bidders, J. C. Connors, 75c., and L. E. Ragan, 78½c.; to L. E. Ragan, sidewalks on Watt st., 54c. per lin. ft.; other bidders, T. R. Crane, 68c. and D. R. Wolcott, 64c.

Ashland, O.—Improvement of the Ashland and Loudenville road, to D. A. Phillips, city, \$11,728, for course limestone macadam and the same for top course limestone and bottom course gravel; contract was awarded for top course limestone and bottom course gravel.—J. C. Wonders, State Highway Commissioner.

Bryan, O.—Improvement of road in Williams County, bids rejected, being considered excessive; work is under supervision of State Highway Commissioner Jas. C. Wonders.

Caldwell, O.—Brick pavement, 7,750 sq. yds., to J. N. Kissner Construction Co., Coshocton, \$1.15 per sq. yd. for pavement, and 40c. per lin. ft. for Berea sandstone curb; total cost \$11,149.

Cincinnati, O.—Rebuilding 25 miles of county roads, to Hanna Construction Co., \$200 per mile.

Dayton, O.—To Frank Tejan, city, for constructing Oakwood State Aid road, \$11,580.—Jas. C. Wonders, State Highway Commissioner.

Lockland, O.—To the M. G. Roth Construction Co., for improvement of Wyoming ave. with brick, \$9,489; other bidders were: Thomas P. Strack, \$10,567; Hinkel & Sullivan, \$10,724; Daniel Trapp, \$10,201.

McArthur, O.—Road improvements, to Juniper & Nixon, Nelsonville, O., \$12,100; other bidders: Winchel & McDaniel, Columbus, \$12,150; J. F. Sater, Logan, O., \$12,177; F. H. Becker, Athens, \$12,115.

Norwalk, O.—Road improvements, to James Quinn, Norwalk, \$12,700; other bidders: Denman, Sandwisch & Eisenhour, Sandusky, \$12,868; Buckeye Engineering Co., Norwalk, \$13,040; Callaghan & Parkinson, Bellevue, \$13,120.

Painesville, O.—Improvement of the Plank road in Lake County, to Callaghan & Parkinson, Bellevue, \$6,047.

Pomeroy, O.—To Geo. Bauer, city, for constructing Pomeroy and Athens State Aid road, \$10,775; sandstone curb will be used.

Youngstown, O.—To Charles Harris & Son, for paving of Poland ave., \$32,216.50; to M. P. Connelly, grading West Chalmers ave. from Garlick st., west, \$400 flat; steam roller contract, to Good Roads Machinery Co., \$1,795.

Muskogee, Okla.—Paving North 10th st., Denver ave. and alley in block 242, to Phoenix Contracting Co., Trinidad asphalt, \$20,964.72.

Shawnee, Okla.—Asphalt paving 52,000 yd., to Metropolitan Engineering & Constr. Co., city, \$1.99 per yd.

Portland, Ore.—Improvement of Kerbey st., to Oregon Hassam Paving Co., at \$40,664; for East 27th st. and several crossings, to Warren Construction Co., \$70,014; East 10th st., to the Oregon Hassam Paving Co., at \$14,744; East 9th st., to Oregon Hassam Paving Co., \$14,263.

Allentown, Pa.—Constructing new State road in Lehigh county, extension of the Walbert's pike, to Contractor George H. Hardner, of this city.

Hazleton, Pa.—Building stone or cement arch over Bun on Bock creek to Reed Construction Co., \$12 per lin. ft. for stone and \$12.75 for concrete; inlets, \$51.08 and man-holes, \$50 each.

Waynesburg, Pa.—Paving 2,000 ft., to Frederick Robinson, city, \$13,000.

Westerly, R. I.—Mayor Bryan F. Mahan, of New London, who had contract to build the State road for two miles from Patter Hill toward Westerly, has thrown up contract after having it for more than a year and State Board of Public Highways has awarded it to next highest bidder, John Bristow, of Narragansett Pier.

Knoxville, Tenn.—To Peter & Gibson for road from Ebenezer to Kingston pike, \$2,500; Ebenezer road west of Asylum, \$2,000; West Emory road, \$2,000, and Dale ave., \$1,500; to J. U. Burkhardt & Co., Emory road, near Beaver Ridge, \$1,500; Beaver Ridge road, \$2,000; Sharps Gap extension, \$2,500; Straw Plains and River road, \$2,500; Martins Mill pike, \$3,000; Huffakers' Ferry road, \$1,000, and McDonald road, \$2,000; to McCammon & Johnson, for work on Rutledge pike, \$2,500, and Maryville pike, \$2,000; to I. H. Russell at \$3,000 for Ruggles' Ferry road; to Gross & Cobbs at \$2,000 for Soloway road, all of Knoxville.

Memphis, Tenn.—To H. P. Streicher & Co., \$42,763 for improving portion of Cooper ave., \$2,580, portions of Monroe ave., \$3,850, portion of Anderson st., and \$2,482, portion of Diana st.; to Roper & McTighe, \$21,819.20 for improving portions of Latham st.; to E. W. Jordan Contracting Co., \$21,695, portions of Waldron blvd.; to E. J. Wetterstrom, \$3,095.80, Cleveland st., and \$27,170 Chelsea ave.; to Tennessee Road Co., \$9,505.12 for portion of Cleveland st.; to Roach & Manigan, at \$8,828.39 for portion of Wisconsin ave.

Mountain View, Tenn.—To J. W. Gillespie, Knoxville, \$1.30 per cu. yd. for macadamizing portions of Rutledge and Dandridge pikes and East Vine ave.

Nashville, Tenn.—Constructing sidewalks, to Foy-Proctor Co., about \$10,000.

Taylor, Tex.—Building roads in Williamson County, to Texas Building Co., represented by W. F. Montgomery, of Georgetown.

Salt Lake City, Utah.—Repairing street pavements, to P. J. Moran, as follows: Excavation, cu. yd., 80c; concrete foundation, cu. yd., \$9.35; pavement, exclusive of foundation, sq. yd. \$1.87; pavement, grouted, sq. yd., \$1.95; pavement, not grouted, sq. yd., \$1.80.

Norfolk, Va.—Granolithic sidewalks, to Perry W. Ruth Co.; Greater Ghent section, \$15,000; Ocean View, \$2,500.

Seattle, Wash.—Constructing walks on E. Alder st. and 33d ave., to E. E. Hall, 1408 4th ave., \$395.40; same, for laying water mains on 22d ave., \$4,397.86; to T. I. Peterson, sewer on 12th ave., \$2,379.55; to P. J. McHugh, 3d ave. N. and E. Mercer st., for paving 20th ave. N. et al., \$57,937.76; to John Kalberg, 5204 10th ave. N. E., for grading and curbing California ave. and Lowman drive, \$18,517; bids were rejected on grading and curbing on N. and W. 76th st., also for maintenance of asphalt on 20th ave.; grading and paving, Inspection District No. 758, to N. A. Jones, \$10,111; grading, District No. 766, to W. M. Hicker, \$2,399.

Spokane, Wash.—Grading, sidewalks and sewers in Fifth Ward, to J. C. Broad, \$27,965.

Keyser, W. Va.—To H. C. Brooks Construction Co., Clarksburg, for paving Mineral st.

Wheeling, W. Va.—Grading Belmont st., in East Wheeling, to Springer & Stringer, \$4 per cu. yd. of dry wall.

Racine, Wis.—Paving Park ave. to the White Constr. Co., of Milwaukee, as follows: 10,378 sq. yd. sheet asphalt, consisting of 5-in. Portland cement foundation, 1-in. binder, 2-in. wearing surface, \$1.99 per sq. yd., and 5,547 lin. ft. combined concrete curb and gutter, 60c per lin. ft.

Sheboygan, Wis.—To J. Rasmussen & Sons, Oshkosh, for paving streets with brick, \$1.85 per sq. yd.; total \$50,000.

Chatham, Ont., Can.—Paving south approach of Kent bridge, to Fiedler Paving Co.

Peterboro, Ont., Can.—Concrete walks of the Township of North Monaghan, to Jas. Boyer, 9 1/2c. per sq. ft.

BIDS RECEIVED

Chicago, Ill.—Paving Johnston ave. with asphalt from N. California ave. to N. Kedzie blvd.: American Asphalt Co., \$18,134.80; R. F. Conway Co., \$18,135.10; paving Elston ave. with granite blocks between W. Division st. and W. North ave., Parker-Washington Co., lowest bidder, \$28,839.20; John A. McGarry Co., lowest for paving W. 12th st. with brick.

Ft. Madison, Ia.—City has rejected all bids opened on July 16 for paving; contract may not be let this season. Following are the bids received: (a) 16,000 sq. yds. brick on concrete foundation; (b) 6,000 lin. ft. concrete curb and gutter 30 ft. wide; (c) 12-in. sewer inlet, per ft.: McManus & Tucker, (a) \$2.19, (b) 62c., (c) 32c.; Cameron, McManus & Joyce, (a) \$2.08, (b) 58c., (c) 30c.; John Downs, (a) \$2.09, (b) 56c., (c) 30c.

Elizabeth, N. J.—Paving Magnolia ave. and Chestnut st. with trap block: Patrick Faughnan bid \$11,851.91; O'Neill & Viscount, \$12,014.44; Samuel Sampson, \$11,681.25. Paving Bond st., between Meadow and Henry sts., with trap block pavement: Samuel Sampson, \$13,697.34; O'Neill & Viscount, \$13,932.54; Patrick Faughnan, \$13,130.32.

Albany, N. Y.—Repair of good roads: (a) Residium, (b) Bermudez. Portville Village Road No. 872, Cattaraugus County, length, .65 mi.: Troy & Mack, Olean, (a) \$15,504, (b) \$15,756; John E. Johnson, Buffalo, (a) \$16,713, (b) \$16,913; bids held. Williamsville Village Road No. 5061, Erie County, 1.08 mi.: Thomas Fitzgerald Co., Fredonia, \$36,850; Bush & Percival, Buffalo, \$34,990; Robert W. Henson, Geneva, \$35,794; F. A. Brotsch, Jr., Rochester, \$40,000; Mu'derry Bros., Albany, \$32,980, awarded contract; H. P. Burgard Co., Buffalo, \$36,000; L. H. Gipp, Buffalo, \$35,000; Mosier & Summers, Buffalo, \$35,500. Dolgeville Village Road No. 863, Herkimer County, 2.06 mi.: (a) Residium, (b) Bermudez; E. D. Baker, Binghamton, (a) \$39,442, (b) \$40,250; Delaware Const. Co., Sidney, (a) \$39,600, (b) \$41,000; Robert W. Henson, Geneva, (a) \$42,576, (b) \$44,000; Dale Engineering Co., Utica, (a) \$39,794, (b) \$40,445; James Anderson, Caledonia, (a) \$38,648, (b) \$39,332; Cooper Snell Co., Little Falls, (a) \$37,777, (b) \$39,202, awarded contract on residuum for \$37,777, subject to right-of-way.

Middleville Village Road No. 869, Herkimer County, .69 mi.: (a) Residium, (b) Bermudez; Dale Engineering Co., Utica, (a) \$8,425, (b) \$8,637; James Anderson, Caledonia, (a) \$8,099, (b) \$8,357; to Newport Construction Co., Newport, (a) \$7,100, (b) \$7,600, for \$7,100 on residuum, subject to right-of-way. Herkimer Village Road No. 870, Herkimer County, 1.99 mi.: (a) Residium-bithu., (b) Bermudez-bithu.; Theodore C. Hailes, Jr., Albany, (a) \$55,670, (b) \$56,740; H. P. Burgard Co., Buffalo, (a) \$48,738, (b) \$49,379; Warren Bros. Co., Boston, Mass., (a) \$49,445, (b) \$50,515, awarded contract for \$49,445 on residuum-bithu. Poland Village-Cold Brook Village Road No. 5069, Herkimer County, 2.04 mi.: (a) Residium, (b) Bermudez; Newport Const. Co., Newport, (a) \$21,900, (b) \$23,200; James Anderson, Caledonia, (a) \$22,920, (b) \$24,076; E. D. Baker, Binghamton, (a) \$22,584, (b) \$23,600; Dale Engineering Co., Utica, (a) \$19,949, (b) \$20,741, awarded contract for \$20,741 on Bermudez, subject to right-of-way. Dansville Village Road No. 867, Livingston County, 1.09 mi.: (a) Residium, (b) Bermudez; A. J. Rockwood, Rochester, (a) \$14,000, (b) \$15,000.

Niagara Const. Co., Corning, \$12,800, (b) \$13,250; F. L. Cohen, Buffalo, (a) \$13,497, (b) \$14,400; E. D. Baker, Binghamton, (a) \$13,983, (b) \$14,123; Schroeder-Hicks Construction Co., Rochester, (a) \$10,600, (b) \$10,654, awarded contract for \$10,654 on Bermudez. Clyde-Savannah Road No. 5070, Part 1, Wayne County, .62 mi.: James Anderson, Caledonia, \$20,773; Lawler Bros. Construction Co., New York, \$18,477, awarded contract; E. D. Baker, Binghamton, N. Y., \$19,999; Henry Tash, Port Byron, \$22,906. Repair Contract No. 63, Road No. 89, Transit Sec. 2, towns of Amherst and Clarence, Erie County: Bids withdrawn.

Repair Contract No. 66, Transit Road No. 88, Sec. 1, towns of Amherst and Clarence, Erie County: Bradley & Stahl, Corning, \$30,145; H. P. Burgard Co., Buffalo, \$30,000; Mosier & Summers, Buffalo, \$30,800; John Miller, Buffalo, \$31,586; F. L. Cohen, Buffalo, \$28,450, awarded contract; Niagara Const. Co., Corning, \$29,140. Repair Contract No. 87, Monroe ave. Road No. 94, towns of Brighton and Pittsford, Monroe County: Julius Frederick Co., Rochester, \$17,200; Whitmore, Rauber & Vicinus, Rochester, \$15,934; bids rejected. Repair Contract No. 64, Big Tree Road No. 86, towns of Aurora and Wales, Erie County: Mosier & Summers, Buffalo, \$35,900; John E. Johnson, Buffalo, \$35,613; Bradley & Steele, Corning, \$35,965; F. A. Brotsch, Jr., Rochester, \$35,500; John Miller, Buffalo, \$37,245; James Anderson, Caledonia, \$35,496; H. P. Burgard, Buffalo, \$36,000; F. L. Cohen, Buffalo, \$36,200; bids held. Big Tree Road, County Highway No. 86-R, Erie County, length, 4 mi.: James Anderson, Caledonia, \$97,384; Thomas Holohan, Rochester, \$84,750; Schroeder-Hicks Construction Co., Rochester, \$100,000; F. L. Cohen, Buffalo, \$94,900; H. P. Burgard Co., Buffalo, \$89,900; Mosier & Summers, Buffalo, \$93,000; F. A. Brotsch, Jr., Rochester, \$98,000; Thomas Fitzgerald Co., Fredonia, \$86,740; John E. Johnson, Buffalo, \$89,913; John Miller, Buffalo, \$99,968; L. H. Gipp Const. Co., Buffalo, \$92,500; bids held.—S. Percy Hooker, Chairman Commission; I. J. Morris, 53 Lancaster st., Albany, Secretary.

Binghamton, N. Y.—Court st. pavement, A. D. Osborne, Bessemer block, \$1.98; Metropolitan block, \$2.10; Clearfield, \$1.98; Mack block, \$1.99; Clymer block, \$1.98; Corning brick, \$1.95; Tyne & Willey, Clearfield brick, \$2.02; Pennsylvania Clay Co. brick, \$2.01; Mack block, \$2.05; Clymer block, \$2.03; James R. Steele, Patterson Clearfield, \$1.95; Corning brick, \$1.95; bids for a new brick surface on Henry st. on the present foundation were: A. D. Osborne, Bessemer block, \$1.98; Metropolitan block, \$2; Clearfield, \$1.77; Mack block, \$1.77; Corning brick, \$1.76; Tyne & Willey, Clearfield, \$1.79; Pennsylvania Clay Co., \$1.77; Mack block, \$1.80; Clymer block, \$1.82; James R. Steele, Patterson Clearfield, \$1.85; Corning brick, \$1.81.

New York, N. Y.—Regulating and repaving with granite block on concrete foundation 1st ave., from Houston st. to 20th st., W. J. Fitzgerald, 547 W. 45th st., lowest bidder, as follows: 26,000 sq. yds. of granite block pavt., with paving cement joints, except the railroad area, \$2.42; 6,850 sq. yds. granite block pavt., with paving cement joints, within the railroad area, no guarantee, \$2.42; 6,070 cu. yds. Portland cement concrete, \$4; 4,680 lin. ft. new bluestone curb, 70c.; 450 lin. ft. old bluestone curb, redressed, rejoined and reset, 10c.; 7,500 sq. ft. new granite bridge stone, furnished and laid, 70c.; 32,260 sq. yds. old stone blocks, to be purchased by contractor and removed, 1c.; total, \$111,025; totals of other bids: Atlanta Const. Co., 434 E. 91st st., \$120,521; Asphalt Constr. Co., 206 Broadway, \$129,827; Hagerty & Drummond Co., 184 Broadway, \$128,666; Rafferty Bros., 624 W. 52d st., \$123,387; M. Baird Const. Co., 434 E. 92d st., \$131,369.

Syracuse, N. Y.—Paving, Lincoln ave., with asphalt, F. J. Baker, \$10,621.75; Warner-Quinlan Asphalt Co., \$10,770.40; Central City Paving Co., \$10,363; block pavement, F. J. Baker, \$10,797; Warner-Quinlan Asphalt Co., \$10,805.45; Central City Paving Co., \$10,503.20; T. C. Lowery, \$9,939; macadam, with special curb and gutter, F. J. Baker, \$10,757.50; Warner-Quinlan Asphalt Co., \$10,710.20; Central City Paving Co., \$10,081; T. C. Lowery, \$9,842.90; C. T. Hookway, \$9,384.50. Prospect ave. asphalt, with stone curb, F. J. Baker, \$4,538.40; Warner-Quinlan Asphalt Co., \$4,492.34; Central City Paving Co., \$4,404.80; asphalt with cement curb, Central City Paving Co., \$4,451.60; block pavement with stone curb, Warner-Quinlan Asphalt Co., \$4,506.10; F. J. Baker, \$4,407.20; Central City Paving Co., \$4,459.84; block pavement with cement curb, Central City Paving Co., \$4,503.76.

Watertown, N. Y.—Paving with creosoted wood blocks, 6,000 sq. yds. on High st., U. S. Wood Preserving Co., 165 Broadway, New York, N. Y., lowest bidder, at \$18.676.

Dayton, O.—As tabulated by Chief Clerk Daniel J. Murphy, of City Engineering Department, low bidders on a number of street paving jobs are as follows: Monument ave., from Keewee to canal, J. O. Shoup, \$26,146; D. Beard, \$26,228. German town, from Euclid to the old corporation line, J. E. Conley, \$8,824.40; J. Geiger, \$9,028.80; Burns ave., from Warren to Morton; J. Geiger, \$9,690.50; D. Beard, \$9,035; Logan, from 6th to Green; D. Beard, \$2,996.75; Hecker & Kirschner, \$2,640.10; D. Beard, \$2,476. Sixty, from Brown to the Miami and Erie Canal; Hecker & Kirschner, \$3,234.20; D. Beard, \$3,059.70. Wyoming, from Phillips to St. Paul; D. Beard, \$11,816.70; W. J. Kernan, \$11,892.30. Wyoming, from Phillips to Creighton; D. Beard, \$3,697; W. J. Kernan, \$3,720.60.

Muskogee, Okla.—Paving Tremont and 9th sts., Heman Contracting Co., Cuban asphalt, \$18,981.70; Phoenix Contracting Co., Trinidad asphalt, \$19,087.20; Court st.: F. P. McCormick, Cuban asphalt, \$23,495; Phoenix Contracting Co., Trinidad asphalt, \$24,499.30.

Butler, Pa.—Paving, John Schaffner, Washington st., DuBois & Butler brick \$1.44, DuBois & Butler hillside \$1.29, American Sewer Pipe Co., brick \$1.47, hillside \$1.51, Porter National \$1.52, hillside \$1.56, excavation 40c.; Jackson st., DuBois & Butler \$1.25, American Sewer Pipe Co. \$1.27, Porter National \$1.32, excavation, 40c.; Lookout ave., unpaved section, DuBois & Butler \$1.15, hillside \$1.19, Porter National \$1.27, hillside \$1.31, American Sewer Pipe

\$1.22, hillside \$1.26, excavation 40c.; Sullivan ave., DuBois & Butler \$1.35, American Sewer Pipe \$1.38, Porter National \$1.42, excavation 40c.; Beckert ave., DuBois & Butler \$1.35, American Sewer Pipe \$1.38, Porter National \$1.41, excavation 40c.; Norman J. Boyer, Lookout ave., DuBois & Butler \$1.10, hillside \$1.14, U. S. Sewer Pipe Co., \$1.10, hillside \$1.14, Porter National hillside \$1.22, excavation 30c.; Washington st., DuBois & Butler \$1.40, U. S. Sewer Pipe \$1.47, Porter National \$1.50, excavation 40c.; Jackson st., DuBois & Butler \$1.23, U. S. Sewer Pipe \$1.26, Porter National \$1.23, excavation 30c.; Beckert ave., DuBois & Butler \$1.15, U. S. Sewer Pipe \$1.15, Porter National \$1.23, excavation 30c.; Sullivan ave., DuBois & Butler \$1.15, U. S. Sewer Pipe \$1.15, Porter National \$1.23, excavation 30c.; Tony Morelli, Lookout ave., DuBois & Butler \$1.23, hillside \$1.35, Porter National \$1.26, hillside \$1.38, excavation 28c.; Jackson st., Butler & DuBois \$1.23, Porter National \$1.26, excavation 28c.; Washington st., DuBois & Butler \$1.24, Porter National \$1.29, excavation 45c.; Beckers ave., DuBois & Butler \$1.23, Porter National \$1.26, excavation 28c.; Sullivan ave., DuBois & Butler \$1.23, Porter National \$1.26, excavation 28c.; F. E. McQuiston, Lookout ave., DuBois & Butler \$1.38, hillside \$1.43, Porter National \$1.43, hillside \$1.49, U. S. Sewer Pipe \$1.40, hillside \$1.45, excavation 40c.; Washington st., DuBois & Butler \$1.38, hillside \$1.43, Porter National \$1.43, hillside \$1.48, U. S. Sewer Pipe \$1.40, hillside \$1.45, excavation 40c.

Marinette, Wis.—John Magnuson, lowest bidder for paving portions of 9th and Elizabeth sts., \$8,564.

SEWERAGE

Oroville, Cal.—Contracts will be let in August for sewers; cost about \$120,000. E. J. Mitchell, City Clerk.

Pleasanton, Cal.—Bids will be received about Aug. 15 for construction of a sewer system from plans of R. A. Haviland.

Eastman, Ga.—Citizens will vote Aug. 17 on \$58,000 sewer, water and school bonds.

Tybee, Ga.—Town will construct sewer system.—Frank W. Storer, Clerk of Council.

Danville, Ill.—Board of Local Improvements has decided to build sanitary sewer in northeast part of city.

Hoopeston, Ill.—Contract will be let in about 60 days for construction of a sanitary sewer system.—H. C. Finley, Mayor.

Lewiston, Ill.—Council has adopted ordinances for construction of sewers as follows: North District sewer to cost \$16,329, and South District sewer \$11,787.

Moline, Ill.—Board of Local Improvements has approved following resolutions: Sewer and water main for 18½ st. and 19th ave., at estimated cost of \$2,525; sewer and water main on 23d ave., alley west of 15th st. and 14½ st., \$2,563.70.

De Witt, Ia.—Iowa Eng. Co., Clinton, is surveying town with view to constructing sewer system.

Essex, Ia.—Citizens have voted to construct sewer system.

Hammond, La.—I. W. Sylvester, Alexandria, is preparing estimates of cost of installing sewer system.

Baltimore, Md.—Plans have been approved for sanitary sewers in South Baltimore.—C. W. Hendrick, Chief Engineer Sewerage Commission.

Duluth, Minn.—Council has passed resolution authorizing the construction of proposed Woodland sanitary trunk sewer; cost \$138,352.

Carthage, Mo.—City is considering construction of vit. pipe sewers in District No. 9.—F. B. Newton, City Engineer.

Montgomery, Mo.—Citizens have defeated proposed \$25,000 bond issue for sewers and water works.

Nevada, Mo.—City is considering construction of about two miles of main sewers.—J. M. Clack, City Engineer.

Warrensburg, Mo.—City is considering construction of main sewers with septic tank on southeast side; engineer has not been secured.—S. P. Tyler, City Clerk.

Sparks, Nev.—Construction of sewer system to be paid for jointly by the city and the railroad company, is being considered. Address Mayor Stinson.

Audubon, N. J.—Petitions for sewers are being circulated.

Hackensack, N. J.—Improvement Commission has passed motion that Engineer Lemuel Lozier be authorized to engage expert on question of sewage disposal and make up set of drawings and decide upon the most efficient and economical manner of constructing disposal plant.

Jersey City, N. J.—Council has passed ordinances to construct sewers on 27th and 21st sts.

Paterson, N. J.—City Engineer H. J. Harder is preparing plans for sewer in the 2d Ward, including tunnel under Passaic River.

Trenton, N. J.—Council is considering construction of sewers in Morgan, George and Klagg aves.

Le Roy, N. Y.—Sewers will be laid on Myrtle and Gilbert Sts.

Westfield, N. Y.—Clyde C. Hill, North East, Pa., is preparing plans for sewer system; cost \$100,000.—J. A. Riley, Village Clerk.

Minot, N. D.—Contract will be let within three months for proposed north side sewer.

Akron, O.—Council has passed ordinance to issue \$16,650 bonds to construct sewers.

Carthage, O.—State Board of Health has granted permission to the Village Council to construct sewer system.

Circleville, O.—Plans and specifications are being prepared by John W. Lowe, Director of Service, for the proposed sanitary sewers.

Dayton, O.—Secretary Wm. A. Budroe, of Department of Public Service, has been authorized to advertise for proposals for construction of storm water sewers on five streets and alleys; also for paving of portions of cement sidewalk.

Upper Sandusky, O.—Council has passed ordinance for issuance of \$5,000 bonds for construction of a surface water and sanitary sewer on Warpole st.—Frank Jonas, Mayor.

Wellston, O.—West Broadway residents have petitioned for extension of main sewer as far as Minnesota ave.

Youngstown, O.—Council is considering construction of sewers on five streets.

Muskogee, Okla.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., will prepare plans for sewage disposal plant and enlargement of water works.

Albany, Ore.—Bond issue of \$40,000 is being planned by Council to provide for extension of city's sewer system.

Corvallis, Ore.—Bids will be received Aug. 15, 7.30 p. m., for \$162,000 bonds for construction of sewers.—Geo. W. Denman, Municipal Judge.

Beaver Falls, Pa.—Bond issue of \$125,000 for sewerage system and disposal plant is favored.

Erie, Pa.—Councilman Nason has introduced in Council ordinance to provide sewer for storm water drainage of Walnut and 3d sts.; City Engineer Briggs has estimated cost of storm water sewer system in Sixth Ward, as planned by an ordinance of Select Councilman Lynch, at \$10,500.

Pleasantville, Pa.—Plans, specifications and estimates will be received for sewage disposal plant.

Sharon, Pa.—City has three years in which to build sewage disposal plant and construct comprehensive sewer system.

South Fork, Pa.—Council has voted to make a 8,000-ft. extension to present sewer system.

Beeville, Tex.—City will issue \$30,000 bonds for construction of a sewer system.

Cameron, Tex.—Citizens have voted \$15,000 bonds for sewers.

Dallas, Tex.—Bids have been ordered for 6-in. sanitary sewers in Kimball and Watt sts.

Seattle, Wash.—Bids will be readvertised for laying storm sewer on State st.

Tacoma, Wash.—Contract will soon be let for construction of two storm sewer dis-

tricts; cost about \$80,000. W. C. Raleigh, City Engineer.

North Vancouver, B. C., Can.—City will expend about \$100,000 for vit. clay pipe sewers.—Geo. A. Hanes, City Engineer.

CONTRACTS AWARDED

Newton, Ia.—Construction of 25,000 ft. of sewers, to Martin Conroy Co., Des Moines, 96.4c. per lin. ft. for sewer pipe, \$1.60 for 8-in. iron pipe, and \$9 per cu. yd. for concrete work where required.

Oelwein, Ia.—To R. C. De la Hunt, Cedar Rapids, for constructing two pipe sewers, as follows: 2,231 ft. 6-in. salt glazed clay pipe sewer, 70c., and 4,292 ft. 8-in. salt glazed clay pipe sewer, 75c.; four manholes, \$35 each, and sewer combined manholes and flush tanks, \$80 each.

Sioux City, Ia.—To Lewis & Leeder, city, for 800 ft. of concrete suction tunnel and laying 16-in. suction pipe, \$15.75 per lin. ft.—K. C. Gaynor, City Engineer.

Baltimore, Md.—Sewers, as follows: To W. H. and C. F. Thompson, sanitary sewer No. 54, \$41,128.15, and to Geo. F. Beavin, storm sewer No. 10, \$7,344.

Malden, Mass.—Extending the North Metropolitan sewer system to Antonio G. Tomasello, 69 Gibson st., Dorchester, at the following bid: 2,631 lin. ft. earth excav. and refill, in trench, 13 and 12-in. pipe sewer, \$4; 60 cu. yds. brick masonry, Portland, \$16; 500 cu. yds. concrete masonry, Portland, \$7; 200 cu. yds. rock excav., \$6; total, \$16,184; totals of other bids: Bryne Cont. Co., 46 School st., Boston, \$21,846; John J. Falvey, 15 Rush st., Somerville, \$18,563; Louis Devencenzi, 4 Cambridge st., Boston, \$17,881; John E. Palmer, 32 Lindsey st., Dorchester, \$17,813; Coleman Bros., 95 Milk st., Boston, \$16,908, and Michael Russo, 240 North st., Boston, \$16,531.

Detroit, Mich.—Construction of brick sewer in Dexter blvd., to William Porath, Rich st., \$8,000.

Lansing, Mich.—Building sewer in Ballard st., to Noyes & Teisher, \$1,824.

Crookston, Minn.—Sampson's addition and North Front st. sewer, to P. McDonnell, Duluth.

Haddon Heights, N. J.—Furnishing material and constructing certain sanitary sewers and sewage disposal works, being part of the general sewerage system, from plans of the City Wastes Disposal Co., 156 5th ave., New York City, N. Y., to B. F. Sweeten & Son, Camden, at the following bid: 31,429 ft. 8-in. vitr. pipe, 6½ to 21 ft. deep, 53c. to \$2.75, according to depth; 1,490 ft. 10-in., 6½ to 15 ft. deep, 61c. to \$1.65; 3,280 ft. 12-in., 6½ to 12 ft. deep, 72c. to \$1.25; 6-in. c. i. pipe, 6½ to 8 ft. deep, \$1.25 and \$1.50; 8-in. c. i. pipe, 6½ to 12 ft. deep, \$2 to \$2.85; 10-in. 6½ ft. to 15 ft. deep, \$2.20 to \$3.65; 12-in., 6½ to 10 ft. deep, \$2.80 to \$3.50; 4-in. Y or T, 8 to 12 in., 60c. to \$1.15; 1,700 ft. 3 to 6-in. ag. drain, 35c. to 50c.; 4 to 6-in. vitr. drain, 50 to 60c. per ft.; single flush tanks, \$85 each; double flush tanks, \$100 each; manholes, \$26 and \$32 each; disposal works, \$23,011; 500 cu. yds. earth excav., 50c.; 100 cu. yds. earth fill, 50c.; 40 cu. yds. rock excav., \$4.50, etc.; total, \$56,548; totals of other bids: Cantrell Constr. Co., \$66,496, and Martin & Miller, Roselle Park, \$58,677.

Sandpoint, Ida.—Bids were received for building sewers in Section No. 1, Dist. No. 1, from (A) A. Burns, Spokane, awarded contract; (B) Spokane Construction Co., Spokane; (C) Mulligan & Jennings, Spokane:

	A	B	C
875 ft. 18-in., 12-14 ft. deep.....	\$2.50	\$3.06	\$4.15
695 ft. 18-in., 10-12 ft. deep.....	2.20	2.70	3.95
785 ft. 18-in., 8-10 ft. deep.....	2.00	2.50	3.55
2,165 ft. 18-in., under 8 ft.....	1.50	2.45	3.10
790 ft. 15-in., 12-14 ft. deep.....	1.95	2.69	3.85
1,000 ft. 15-in., 10-12 ft. deep.....	1.85	2.50	3.55
370 ft. 15-in., 8-10 ft. deep.....	1.65	2.40	3.10
1,667 ft. 12-in., 12-14 ft. deep.....	1.62	2.27½	3.00
360 ft. 12-in., 10-12 ft. deep.....	1.52	2.05	2.75
300 ft. 12-in., 8-10 ft. deep.....	1.22	1.90	2.70
565 ft. 10-in., 10-12 ft. deep.....	1.42	2.00	2.75
200 ft. 10-in., 8-10 ft. deep.....	1.12	1.00	2.50
160 ft. 8-in., 12-14 ft. deep.....	1.30	1.91	3.25
2,162 ft. 8-in., 10-12 ft. deep.....	1.12	1.70	2.30
780 ft. 8-in., 8-10 ft. deep.....	1.00	1.50	2.00
2,400 ft. 8-in., under 8 ft. deep.....	.85	1.45	1.70
107 6-in. Ys for 8-in. pipe.....	.55	.40	1.30
36 6-in. Ys for 10-in. pipe.....	.72	.90	1.75
16 6-in. Ys for 12-in. pipe.....	.91	1.10	2.20
86 6-in. Ys for 15-in. pipe.....	1.45	1.50	3.20
86 6-in. Ys for 18-in. pipe.....	2.10	1.90	4.70
331 6-in. bends in place with stoppers.....	.70	.75	.90
5 Manholes, complete, 6 ft or less.....	65.00	50.00	70.00
13 Manholes, complete, 8 to 10 ft.....	75.00	65.00	85.00
24 Manholes, complete, 10 to 15 ft.....	95.00	92.00	95.00
5,520 ft. trough to support 18-in. sewer.....	.20	.36	1.05
1,166 ft. trough to support 15-in. sewer.....	.20	.34	1.05
2,327 ft. trough to support 12-in. sewer.....	.15	.31	.95
765 ft. trough to support 10-in. sewer.....	.15	.22	.85
5,502 ft. trough to support 8-in. sewer.....	.08	.20	.80
Screen-house lump sum.....	1,000.00	860.00	1,030.00
800 ft. reinforced concrete sewer.....	3.50	2.60	3.90
2,000 ft. 10-in. wooden sewer.....	1.00	1.44	1.50
200 ft. rein. concrete weights, in place.....	5.00	3.50	4.25
600 ft. trestle under rein. concrete pipe.....	2.50	1.80	3.75
Total	\$37,597	\$48,483	\$73,402

Milburn, N. J.—Constructing about 9,000 ft. sewers, from plans of E. R. Halsey, Township Engineer, 164 Market st., Newark, to Pasquale Mauriello, Orange, \$7,121.

Gates, N. Y.—Constructing about 4,340 ft. brick sewer from 4 ft. to 5 ft. 8 in. in diam. in Stanton st., to N. Brayer & Albaugh, Rochester, \$58,252.—W. R. Storey, 510 Ellwanger & Barry Bldg., Rochester, Engineer; M. L. Magin, Town Clerk.

Butler, Pa.—To Norman J. Boyer, for public sewer on Federal st., 35c. per lin. ft.; \$35 for manholes and \$65 for each flush tank.

Masontown, Pa.—To Uniontown Construction Co., Uniontown, for constructing sewers, \$28,132.

Providence, R. I.—Building sewer on Alabama, Montgomery, New York and Wayland aves, to Frank A. Gammino, \$3,311.30; sewer on Camp st., to Frederick E. Shaw, \$227.10.

Salt Lake City, Utah.—To Moran Construction Co., for construction of sewers in District 105, \$17,495.

Yorktown, Sask., Can.—Sewers and sewage disposal: To J. W. Christie, Yorktown, for sewage disposal plant, exclusive of distributing apparatus and valves, \$6,450, and to N. B. McInnis, Regina, Sask., for sewers as follows: 2,900 ft. 20-in. sewer, including all labor and material, \$2,357; 3,200 ft. 15-in. sewer, \$2,357; 1,700 ft. 10-in. sewer, \$1,607; 2,800 ft. 8-in. sewer, \$1,257; and manholes, per vertical foot, \$6.50.—F. T. McArthur, Town Engineer.

BIDS RECEIVED

Des Moines, Ia.—Construction of the sewer in Maple st., T. J. Casselberry, \$1.33 per ft.; John A. Jones, \$1.87½ per lin. ft.

Lexington, Ky.—Storm water sewer on South Limestone st., Joseph Melvin, 15-in. sewer pipe, \$1.03; 12-in. sewer pipe, 85c.; manholes, \$25 each; Kelley Bros., 15-in. sewer pipe, \$1.10; 12-in. sewer pipe, 90c.; manholes, \$25 each.

Fort Missoula, Mont.—Sewer system, J. P. Adamson, St. Paul, \$15,820; J. H. Fife, \$12,500; John P. Grady, \$17,500; P. A. Harrington, \$16,400.

Elmira, N. Y.—Building sewers, E. W. Walsh, lowest bidder, \$1,578.75, 224.35 ft. 12-in. vit. 7.6 ft. deep, 76½ ft. with stones, firm; 440.05 ft. 12-in. 17.3 ft. deep, 74c.; 208.80 ft. 10-in. 9.3 ft. deep, 70½c., loose; 320.40 ft. 12-in. 7.5 ft. deep, 69¾c., loose; 89.65 ft. 12-in., 7.3 ft. deep, 70½c., loose; 420 ft. 12-in., 6.9 ft. deep, 71½c., loose; manholes, depth varying, \$44; brick surface water inlet, C. B. 6½ ft. deep, \$26.—T. A. Brown, Acting City Engineer.

Spokane, Wash.—City has rejected all bids opened July 22 for sewers; following are lowest bids received: Fifth Ward trunk sewer, in District 9, Jas. C. Broad, \$27,965; extending First Ward subtrunk sewer, District 1, Lang & Smith, \$19,660, and sewer in Spofford ave., Mitchell Bros., \$3,744.

East Milwaukee, Wis.—Constructing sewers, Hermann Hohensee, 965 27th st., Milwaukee, lowest bidder, about \$47,000.

WATER SUPPLY

Paris, Ark.—City has formed improvement district to vote on \$75,000 bonds for installation of water works; standpipe will be located on elevation of 181 ft.; plans made.

Corning, Cal.—Plans and specifications have been submitted to City Trustees by County Surveyor for sewer and water system; cost \$70,000.

Los Angeles, Cal.—Water Department will expend about \$450,000 in improvements, including enlarging and lining Bellevue tunnel, completion of Ivanhoe reservoir, laying 30-in. main along Vermont ave. and mains along 16th st., etc.—Wm. Mulholland, Superintendent.

Colorado Springs, Colo.—Canon Light & Power Co. has been incorporated by Attorney P. H. Dodge, Colorado Springs; company will expend about \$80,000 in construction of a reservoir, pipe lines and a power plant for the generation of electricity.

East Hartford, Conn.—East Hartford Fire District has decided to purchase its own pipe for proposed extension of the water main and to ask bids for doing the work.—C. Henry Olmsted Engineer.

Ocala, Fla.—Ocala Water Co. will sink 10-inch well, increasing water capacity 50 per cent; cost \$3,000.

Tallahassee, Fla.—Citizens have voted \$15,000 bonds for water and electric light extension.

Eastman, Ga.—Citizens will vote Aug. 17 on \$58,000 water, sewer and school bonds.

Flora, Ill.—Citizens have voted to construct water works.—J. S. Spiker, Vincennes, Ind., Engineer; W. M. Griffin, City Clerk.

Vandalia, Ill.—Citizens have voted \$10,000 bonds for improving water works and electric light plant.

Connersville, Ind.—Engineer J. B. Marion, Frankfort, has completed plans for system

of water works; cost \$30,000; citizens will vote on the project Aug. 27.—William Reeder, City Clerk.

Evansville, Ind.—Water Works Board is planning for new set of pumping engines, to pump water into filter basins, building to house engines, tunnel between the filter plant and pumping station on the mound, and an embankment to protect the new filter plant from the river in high water; cost, close upon \$75,000.

Normal City, Ind.—Town Trustees are considering construction of water works.

Carson, Ia.—Citizens have defeated proposition to issue bonds for the installation of a water works system; question will again be submitted.

Davenport, Ia.—Davenport Water Co. has petitioned for a 25-year extension of franchise; if same is granted will construct a 24-in. main for power station No. 1 to Rock Island st.; cost about \$150,000.

Brunswick, Md.—Citizens have voted \$5,000 water bonds.

Pittsfield, Mass.—State Board of Health has approved plans for reservoir to be constructed on Mill Brook.

Crookstown, Minn.—Council is considering a number of petitions for the extension of water mains.

Minneapolis, Minn.—Water Commission has voted to adopt recommendation of Andrew Rinker, City Engineer, for 36-in. water main from Camden place to connect with the 24-in. mains at Lyndale and Hawthorne aves; cost, \$165,792; also installation of 20,000,000-gal. electric pump at Camden station; bids will be asked at once.

Townsend, Mont.—Plans are being prepared for water works.

Asbury Park, N. J.—Shark River Water Co. has submitted a proposition to Council offering to construct a 72-in. water main to this city.

Trenton, N. J.—Board of Water Commissioners has requested Council to provide funds for purchase of land near new reservoir to be used for filtration or sedimentation beds.

Verona, N. J.—Council has passed a resolution to lay 4,000 ft. of water mains.

Hornell, N. Y.—Board of Public Works has completed plans for construction of storage reservoir; capacity, 110,000,000 gals.; cost, \$55,000.

New York, N. Y.—Commissioner of Water Supply has been granted appropriation of \$2,200,000 for completion of eastern basin of Jerome Park reservoir, as originally designed, and for additional work required for foundations for filter plant.

Niagara Falls, N. Y.—Board of Estimate and apportionment has accepted bid of W. C. Langley & Co., New York, for \$514,000 issue of water bonds, with which to complete new water supply system.

Ogdensburg, N. Y.—Aldermen have passed resolution to authorize bond issue of \$175,000 for installation of filtration plant.

Oswego, N. Y.—Department of Water has decided to petition the Council for appropriation of \$5,000 to cover expense of the proposed extensions of mains in E. 6th, E. Schuyler, W. Bridge sts, the new Normal School extension and W. 1st st. complete, balance to be applied on extensions in Niagara and Hawley sts.; Secretary has been instructed to get prices and samples of hose nozzles suitable for use at new pump house.

Rockville Center, L. I., N. Y.—Village Trustees will soon let contract for a pump of 1,000,000-gals. capacity; either steam or electric.

Charlotte, N. C.—Board of Water Commissioners are considering improvement of water shed from which city gets its water supply.

Urbana, O.—James Westwater & Co., Columbus, has proposed to duplicate present water works plant for \$126,000 or to construct plant according to plans and specifications of S. Weyer.

Utica, O.—S. S. Weyer, Harrison Bldg., Columbus, has been selected to prepare plans and specifications for water works; bids for construction will be received until August 12; plant will consist of a 300,000-gal. reinforced concrete reservoir, 2 drilled

wells, 2 deep well pumps, 2 brick, stone and concrete pump houses, mains, 30 hydrants, 12 6-in. valves, 5 4-in. valves, 1,000 ft. of 2½-in. fire hose.—J. W. McKelvey, Village Clerk.

Muskogee, Okla.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., will prepare plans for enlargement of water works and for sewage disposal plant.

Hood River, Ore.—Council will again advertise \$90,000 issue of municipal water bonds.

Medford, Ore.—Property owners on Alder st. have petitioned Council for the installation of water main and sewer.

Salem, Ore.—Council is favorable to immediate installation of gravity water supply from Santiam River.

Catasauqua, Pa.—Citizens have voted \$15,000 bonds to extend water system.

Clifton Heights, Pa.—Residents are considering installation of municipal water works system.

Conway, Pa.—Citizens have voted \$20,000 bonds for municipal water plant.

North Braddock, Pa.—Plans are being prepared for construction of water works.

Smithton, Pa.—The Smithton Water Co. has been incorporated to construct water works.

Lakewood, R. I.—Cataract Fire Co. is considering construction of municipal water works; cost, about \$45,000.—Wm. Haehr, Chairman Committee.

Hartford, S. D.—Construction of municipal water works system is being considered.

Halls, Tenn.—Halls Light, Water and Ice Co. will install water system.—Paul Freeman, Purchasing Agent.

Jellico, Tenn.—Citizens will vote Sept. 1 on bonds for installation of water system.

Hearne, Tex.—City is considering construction of water works.

Lubbock, Tex.—Citizens have voted \$55,000 bonds for water works and a sewer system.

Paris, Tex.—Council has appropriated \$20,000 for water works construction.

San Antonio, Tex.—Council has decided to install one 4-in. connection and two 2½-in. outlets on every water plug.

Tacoma, Wash.—Bids will be called for in about 10 days for construction of the first unit of the city's \$2,000,000 Green River gravity system; first unit comprises intake, \$5,000; settling basin, \$5,000; drain, \$5,000; tunnel No. 1, \$34,000; tunnel No. 2, \$5,000; river crossing, \$6,000.—N. Lawson, Commissioner.

Fairmont, W. Va.—First National Bank has purchased \$75,000 water bonds.

Keyser, W. Va.—Citizens have voted \$30,000 bonds to provide subsidiary dam to increase water supply.—L. Schaidt, Cumberland, Md., Engineer.

Romney, W. Va.—Citizens are considering election on \$30,000 water bonds.

Wheeling, W. Va.—Water and Light Committee has asked for \$46,000 increase in appropriations; pump and main system will be installed in Wheeling Heights.

Eau Claire, Wis.—Council is considering construction of cement reservoir, 400,000 to 500,000 gallons capacity.

Norwalk, Wis.—City is considering election on installation of water works system.

Victoria, B. C., Can.—City Engineer Smith has recommended eight extensions to water mains.

CONTRACTS AWARDED

St. Petersburg, Fla.—Council has decided to purchase the Harris air lift and pump for use in city water works.

Albany, Ga.—Installation of 11,000 ft. of water main, to R. C. Eatman; work is to be started at once.

Houghton, Mich.—To A. W. Anderson & Son, for constructing reservoir, \$3,822.

Janesville, Minn.—To W. D. Lovell, Minneapolis, for 8,400 ft. water mains, \$5,784.

Sutton, Neb.—Constructing water works, to Catz Craig Engr. Co., Omaha, \$19,470.

Plattsburg, N. Y.—To John F. Fitzpatrick & Sons, city, for constructing West Brook dam, \$24,417.

Williston, N. D.—To C. H. Porritt, Fargo, for construction of reservoir, \$3,980.

Washington, D. C.—Bids received July 27 by District Commissioners for c. i. water pipe and specials, from (A) Glamorgan Pipe & Foundry Co., Lynchburg, Va.; (B) U. S. Cast Iron Pipe & Foundry Co., 1421 Chestnut St., Philadelphia, Pa.; (C) Standard Cast Iron Pipe & Foundry Co., 112 N. Broad St., Philadelphia, Pa.; (D) Lynchburg Foundry Co., Lynchburg, Va.; (E) Camden Iron Works, 400 Chestnut St., Philadelphia, Pa.; (F) Weatherly Foundry & Machine Co., Weatherly, Carbon Co., Pa.:

	A	B	C	D	E	F
18 tons 3-in. pipe, shell 0.34-in. thick....	\$29.80	\$26.30	\$31.08	\$29.95	\$33.60	.....
50 tons 4-in. pipe, shell 0.36-in. thick....	25.85	26.30	26.08	26.40	28.50	.....
102 tons 6-in. pipe, shell 0.42-in. thick....	24.85	26.30	25.08	25.40	26.25	.....
2,252 tons 8-in. pipe, shell 0.48-in. thick....	24.85	26.30	25.08	25.40	26.25	.....
1,753 tons 12-in. pipe, shell 0.57-in. thick....	24.60	26.30	25.08	25.40	26.25	.....
786 tons 20-in. pipe, shell 0.66-in. thick....	24.60	26.30	25.08	25.20	25.50	.....
100 tons c. i. water pipe specials—	.....	.....	48.00	.....	58.24	\$51.74
In accordance with plans and spec. of New England W. W. Assn.....	.....	54.90	.....	52.75	56.00	.....
In accordance with their own plans and specifications .....	.....	.....	.....	.....	.....	.....

Amherst, O.—Construction of about 13 miles water pipe, varying in size from 10 to 4 in., and to East Liverpool Sand & Gravel Co., East Liverpool, \$56,800.—Aetna Eng. Bureau, 125 La Salle st., Chicago, Ill., Engineers.

Dayton, O.—Additional water supply equipment: For lumber, W. C. Ely, at \$2,744; for pump house, Requarth Co., at \$495; pumping units, Dravo Doyle, Cleveland, O., at \$675; excavation work will be done with the city's workmen.

Vale, Ore.—To American Light and Water Co., Kansas City, Mo., for installation of water works and sewer system, \$63,940.

Brownsville, Tex.—Machinery for water plant to Harrisburg Foundry & Machine Works.

Wheatland, Wyo.—Construction of water works, sewer system and electric light plant, to P. O'Brian, Denver, Colo.; water pipe, 10-in., \$1.74 per ft.; 8-in., \$1.37; 6-in., 98c., and 4-in. 70c. per ft.; tanks, \$8,000; pumps, \$3,500; building, \$3,100; power plant, \$12,000; sewer pipe, 10-in., 74½c.; 8-in., 62½c.; 6-in., 54c.; manholes, each, \$48, and lampholes, each, \$6; total cost, including hydrants and valves, etc., \$68,720; totals of other bids: American Light & Water Co., Kansas City, Mo., \$70,123; Katz, Craig & Co., Omaha, Neb., \$70,350; T. S. Sheppard, Denver, Colo., \$70,960; W. G. Garrard, Sheridan, Wyo., \$72,050; E. Jaeger, Rich Hill, Mo., \$73,500.

BIDS RECEIVED

Grand Rapids, Mich.—Machinery for the low lift pumping station in connection with filtration plant, Ft. Wayne Electric Works, \$12,425; R. D. Wood & Co., \$14,216; General Electric Co., \$13,862.

Fort Missoula, Mont.—Water system, John P. Grady, Missoula, \$16,000; P. A. Harrington, Missoula, \$19,200; J. H. Fife, Spokane, a detailed bid, \$50 per manhole, etc.; for walks and curbs, John E. Wilson, Missoula, \$5,870; W. M. Germaine and W. M. Beacon, Missoula, \$6,550; Miracle-Tripp Concrete Co., Missoula, \$5,503.40; reinforced concrete pumping station, for construction proper, P. A. Harrington, \$9,100, or for electric driven pump, \$3,700; machinery, United Iron Works, Spokane, \$14,056, with steam-driven pump, or \$10,155, with electric-driven pumps; Anaconda Copper Mining Co., Butte, \$6,975.

Dayton, O.—Construction and furnishing of temporary pumping station on the Mad River levee above the water works: Larkin Brothers, T. J. Backus Co., Platt Iron Works, John B. Rausch, F. A. Requarth, Miami Lumber & Veneer Co., W. C. Ely, C. H. Hosler, all of Dayton; R. D. Wood, Philadelphia; Drake & Doyle, Cleveland; Harvey C. Harbell, Loveland, and Lawrence Machine Co., Lawrence, Mass.; cost, about \$20,000.

Brockville, Ont., Can.—Tenders for the erection of new pump house, Barclay, Fair & Fox, granite and brick, \$12,996; Street & Anderson, granite and brick, \$10,911; Street & Anderson, brick, \$10,661; W. Patterson, concrete, \$9,000; W. Patterson, granite and brick, \$9,481; W. Patterson, brick, \$9,600; work will be done by day labor.

St. Thomas, Ont., Can.—Tenders for concrete reservoir, capacity 900,000 gals., G. A. Ponsford, St. Thomas, \$12,930; A. E. Ponsford, St. Thomas, \$13,300.

LIGHTING AND POWER

Helena, Ark.—Helena Gas Co. will enlarge electric plant.

Ozark, Ark.—Ozark Electric Light & Power Co. is considering change to 60-cycle, 2-phase system; also change power plant to producer gas system.—R. B. Bryant, Superintendent.

Pasadena, Cal.—General Manager Kolner has been allowed to expend, if needed, \$3,250 for constructive material for municipal electric lighting plant.

St. Petersburg, Fla.—St. Petersburg Investment Co. is about to install tungsten series street lighting system and two 250-h.p. Berry boilers.—B. M. Latham, Superintendent.

Tallahassee, Fla.—Citizens have voted \$15,000 bonds for water and electric light extension.

Lincoln, Ill.—Lincoln Water and Light Co. proposes changing alternating equipment by putting in 60-cycle generators of larger capacity.—E. MacDonald, Superintendent.

Vandalia, Ill.—Citizens have voted \$10,000 bonds to improve electric light and water works plant.

Huntingburg, Ind.—Huntingburg Electric Light Co. has been incorporated to build, equip and operate electric light plant.—Charles and August Miesner and F. J. Katterhenry, Directors.

Marion, Ind.—Marion Light and Heating Co. has been granted franchise by County Commissioners to run a high tension wire

from its central power plant in this city to Jonesboro.

Middletown, Ind.—Citizens have voted to construct electric light plant.—F. A. Wischart, Town Clerk.

Hope, Kan.—Municipal Electric Light Plant, Herington, will soon enter into contract for lighting city of Hope; company will construct a transmission line eight miles in length.—H. J. Stromquist, Herington, Superintendent.

Salina, Kan.—Council has repealed all franchises previously passed and granted to People's Light, Heat and Power Co. and passed new one drawn up by joint session of Merchants' Association, Attorney C. W. Burch representing them, and Attorney J. R. Cottingham, of Guthrie, and Thomas H. Smith.

Wichita, Kan.—Kansas Gas and Electric Co. has secured a site between 3d st. and Arkansas River for its proposed \$575,000 plant.

Dayton, Ky.—City is conferring with U. L. H. & P. Co. in reference to securing natural gas at source same as other cities. Address Mayor Quimby.

Owenton, Ky.—John Smith and associates will erect power house to furnish electric power for proposed railway.

Foxboro, Mass.—Foxboro Electric Co. has petitioned State Board of Gas and Electric Light Commissioners for permission to increase its capital from \$16,500 to \$60,000, to provide for enlargement of its plant.

Preston, Minn.—O. H. Case & Son, Civil Engineers of Fountain, are preparing plans for water power plant.—G. A. Love, Mayor.

Bozeman, Mont.—Dr. Schroeter has asked Council for gas franchise.

Alliance, Neb.—Council has finally decided to buy electric light plant from present owners.

Bloomfield, N. J.—Residents are considering advisability of organizing an electric lighting company to light the municipality until such time as the Legislature may grant to towns the privilege accorded to cities of operating municipal lighting plants.—James M. Walker, Chairman, Lighting Committee.

Mendham, N. J.—Borough Council has passed second reading ordinance granting electric light franchise to Bernards Water Co.

Buffalo, N. Y.—All bids opened July 19 by Board County Supervisors for constructing a power plant at the Erie County penitentiary have been rejected; new bids will be received.—F. B. Steele, Clerk.

Matamoras, N. Y.—Henry T. Baker, Milford, and W. A. Parshall, Manager D. R. Thomas and Herbert Senger, Port Jervis, have appeared before Council in behalf of the Pike County Gas Co. and Pike County Light and Power Co., and made application that permission be granted these companies to lay pipes and string wires for purpose of supplying residents with gas and electric service.

Hudson, O.—D. M. Hosford, 615 Caxton Bldg., Cleveland, has prepared plans for a municipal electric light plant, consisting of a 100-kw., 3-phase, 2,300-volt generator, direct connected to producer-gas engine, together with complete producer equipment.

Grandfield, Okla.—E. E. Preston and J. E. Fitzpatrick, have petitioned for franchise for electric light plant; cost, \$10,000.

Oklahoma City, Okla.—Oklahoma Gas & Electric Co. has decided to expend about \$250,000 during next 5 months.

The Dalles, Ore.—Columbia Power & Light Co. will spend \$60,000 in improving electric system in Wasco County.

Altoona, Pa.—Pennsylvania Central Light and Power Co. is preparing plans for large electric light plant.

New Castle, Pa.—Police Committee has recommended construction of a municipal electric light plant.

Wilson Creek, Wash.—Council has granted C. J. Heller franchise for electric light and power plant.

Wheeling, W. Va.—Water and Light Committee has asked for additional appropriation of \$46,000; new generator will be installed at electric plant; also 75 lights.

CONTRACTS AWARDED

South Pasadena, Cal.—To Pacific Light and Power Co., to install lights of 40 candle power instead of the 16-candle power lights now in use, for a period of five years.

Batavia, Ill.—To Freeman & Son, for two 150-hp. boilers and other equipment for the electric light plant, at \$6,300.

Waterville, Me.—Committee on Public Buildings has recommended to city that contract for lighting the city hall and armory be given to Waterville and Fairfield Railway and Light Co. at rate of 3½c. per kw.-hour.

Brownsville, Tex.—Electric appliances and machinery to Westinghouse, Electrical Co.

Bedford City, Va.—Construction work for the hydroelectric power plant, as follows: Concrete work, power house and race, to

Jas. R. Guy, Jr., Bedford City, \$13,680; repairs to dam, to L. A. Sadler, from whom the dam was purchased for \$2,000; all electric appliances, to Westinghouse Co., Pittsburgh, Pa., \$19,898; electric line complete, to S. L. Livers, for \$17,800; turbine wheel and all machinery connected with the water power, to S. Morgan Smith, for \$11,481.—F. Weller, Washington, D. C., Engineer.

Janesville, Wis.—Street lighting renewal, to Janesville Electric Co.

FIRE EQUIPMENT

East San José, Cal.—Plans for fire house and jail have been presented to Trustees by Howard Waltz, representing J. K. Vrooman.

Sterling, Col.—Purchase of additional fire hose is being considered.

New Haven, Conn.—Board of Fire Commissioners will ask for annual appropriation of \$50,000 for new house and signal system.

Norwich, Conn.—Chief Howard L. Stanton has made following recommendations: Purchase of engine for Thamesville District, rebuilding aerial truck and equipping it with a quick-raising device; purchase of motor-driven apparatus; equipping Company 2 with new combination wagon; regulation of storage of gasoline and other combustibles.—C. F. Thayer, Mayor.

Ottawa, Kan.—Erection of fire station is being considered; also purchase of motor apparatus.

Frostburg, Md.—Building Committee of Council will purchase site on Grant st. for erection of hose house.

Kalamazoo, Mich.—Board of Aldermen is considering purchase of fire alarm boxes; 100 boxes needed.

Carthage, Mo.—City is considering purchase of auto fire wagon.—S. S. Mathews, Fire Chief.

Nevada, Mo.—City is considering purchase of about 550 ft. of fire hose.—Frank Holmes, Fire Chief.

Hackensack, N. J.—H. B. Ferber, in behalf of Engine Company No. 5 has petitioned Improvement Commission to have suitable fire house constructed for automobile fire engine that will arrive in short time.

Lambertville, N. J.—Fleet Wing Hook and Ladder Co. is securing funds for apparatus.

South Orange, N. J.—Council will at once ask bids for erection of \$3,000 fire house; plans by Geo. E. Krug.

Trenton, N. J.—Council has passed ordinance appropriating \$5,000 for improvements to fire and police telegraph system.

Nyack, N. Y.—Installation of fire alarm system is being considered by Board of Trustees.

Syracuse, N. Y.—Architect M. D. Makepeace has prepared plans for erection of \$20,000 fire station.—H. E. Hessler, Commissioner of Public Safety.

Bismarck, N. D.—Citizens will vote on \$15,000 bonds for fire station.

Wyndmere, N. D.—Fire company has been organized.—John Heyerholm, Chief.

Akron, O.—Combination auto fire engine will be purchased for Station No. 7; \$8,500 available.

Youngstown, O.—Council has passed ordinance for purchase of 3,000 ft. of hose.

Ashley, Pa.—Installation of fire alarm system is being considered.

Chester, Pa.—Question of installation of fire alarm system will come up before Councils within short time.

Scranton, Pa.—Bids will be readvertised for erecting five fire stations.

York, Pa.—Reliance Fire Co. is considering purchase of auto hose cart.

Logan City, Utah.—Board of Fire Underwriters has recommended purchase of modern hose and chemical wagon.—John H. Anderson, Mayor.

Antigo, Wis.—Purchase of another fire engine is being urged.

Appleton, Wis.—Citizens have petitioned Council to purchase fire engine.

Racine, Wis.—Installation of auto chemical and hose truck is favored by Fire Chief Cope.

Weyerhaeuser, Wis.—Village Council has decided to buy chemical engine and hook and ladder trucks.

Niagara Falls, Ont., Can.—Citizens have voted \$2,500 for fire hall.

CONTRACTS AWARDED

Wilmington, Del.—Water Witch Fire Co. has placed an order for \$9,000 combination automobile fire engine, hose cart and chemical wagon with Robinson Fire Apparatus Co., St. Louis, Mo.; order for smaller auto fire engine will be given to Oldsmobile Co. as soon as drawings are completed.

Port Tampa City, Fla.—Hose, 1,000 ft., to Eureka Hose Co., New York.

Taunton, Mass.—Rebuilding steamer No. 4, to Combination Ladder and Rhode Island truck from American-La France Co., \$5,000.

South Orange, N. J.—Fire alarm system to Ingersoll-Rand Co., \$1,650.

Westfield, N. J.—Construction of fire house, to John P. Goltra, city, \$19,690.

Poughkeepsie, N. Y.—La France Co., Elmira, will repair Cataract Steam Engine Co. No. 4 at cost of \$1,800.

Beach, N. D.—To W. S. Nott Co., Minneapolis, two Victor chemical engines, \$800.

Du Bois, Pa.—Erecting home for Friendship Hose Co., to A. N. Work, \$3,907.

Scranton, Pa.—Building Nineteenth Ward, to Jas. Niland, \$7,100; all other bids rejected.

Racine, Wis.—Council has decided to purchase combination chemical and hose auto Coupling Co., Providence, R. I., \$2,380.

BIDS RECEIVED

Port Jervis, N. Y.—Construction of a drying tower on Franklin st., Frank Ulrich, \$718; George A. Post, \$725, and Patrick Murrian, \$730.

BRIDGES

Napa, Cal.—County Commissioners have decided to construct two stone bridges on Browns Valley road.

Alexandria, Ind.—Residents of Phillips addition have petitioned Council for construction of bridge across Little Pipe Creek on Fulton ave.

Huntington, Ind.—Erection of bridge over Sa'anome River at Lancaster is being considered.

South Portland, Me.—Commissioner of Public Works has been authorized to construct reinforced concrete bridge on Cottage st.; cost, \$2,500.

Baltimore, Md.—Board of Awards has approved specifications of Park Board for steel and concrete bridge to be erected from Cedar ave. to Wyman Park.

Wilson, Md.—Garrett County Commissioners have decided to erect wrought iron bridges on the north branch of Potomac River, at Dobbin and at Wilson.

Boston, Mass.—Issuing of bonds has been approved as follows: \$80,000 for temporary structure at the Chelsea South Bridge; \$125,000 for bridge at Meridian st., East Boston, and \$115,000 for rebuilding draw span at the Broadway Bridge at South Boston.

Boston, Mass.—Colonel Abbott, head of United States Engineers, has agreed with Superintendent of Streets Rourke to accept city's offer to build temporary bridge costing \$250,000, with a south draw 100 feet wide.

Kansas City, Mo.—Plans by Waddell & Harrington, Kansas City, have been accepted for construction of proposed 12th st. traffic bridge; plans call for structure of concrete costing \$600,000 or steel costing \$420,000.

Schuyler, Neb.—Citizens Committee has raised \$10,000 toward construction of Platte River bridge.

Binghamton, N. Y.—Plans for substructure for new Chenango-Fenton bridge have been received and it will be necessary to readvertise for bids so that the substructure as well as the steel work may be covered.

Watertown, N. Y.—Construction of a bridge over Black River is being considered; cost \$146,164.

Akron, O.—Council has passed \$15,000 bond issue for building Bowery viaduct.

Lima, O.—City is considering construction of bridge on Pine st.

Youngstown, O.—County Commissioners are considering erection of \$15,000 bridge at Lime Run.

Nowata, Okla.—Nowata County has voted \$100,000 of bridge and road bonds.

New Castle, Pa.—Lawrence County Board of Commissioners is considering replacing of bridge on Etna st., west side, with cement structure.

Dallas, Tex.—City will construct concrete bridge across branch on Roseland ave.—J. M. Preston, City Engineer.

Houston, Tex.—Frank L. Dormant, City Hall, has completed plans for concrete bridge to be constructed over Buffalo Payou.

CONTRACTS AWARDED

San Diego, Cal.—To the Young Construction Co., Los Angeles, for construction of the San Luis Rey bridge.

Yreka, Cal.—Building Yreka Creek bridge, to Murray Elwell Co., \$3,100.

Willows, Cal.—Walker Creek bridge, to Bid Williams, city, \$1,875.

Columbus, Ga.—Constructing a concrete steel arch bridge over Chattahoochee River at Dillingham st., to B. H. Hardway, \$100,000.

Hammond, Ind.—To Fitz-Simmons-Connell Co., Chicago, \$3,950 for construction of temporary bridge over Grand Calumet River at Hohman st.

Ottumwa, Ia.—Construction of bridges, to Ottumwa Bridge Co., city.

Newton, N. C.—To Oswego, N. Y., Bridge Co. to construct bridge across Catawba River, \$68,000; to Hart, Abbe & Co., Hickory, for concrete piers, \$2,800.

Akron, O.—Repairs to be made on the canal and river bridge at Peninsula, to Home Engineering and Construction Co., Canton, lowest bidder, \$1,688.

Cincinnati, O.—Construction of bridges across Banklick Creek and De Coursey Creek to Carolina Engineering Co., Burlington, N. C., \$13,450.

Cincinnati, O.—To Kirschner Construction Co., 8th and Plum sts., for constructing reinforced concrete bridge over west fork of Mill Creek at Powers st., \$5,745.

Renwick, Pa.—To C. H. Reimard, Bloomsburg, for permanent floor in Berwick-Nescopeck bridge across Susquehanna River, \$26,668.

Norfolk, Va.—W. M. Murray & Co., city, for erection of bridge over Tanner's Creek, \$2,131.50.

Colville, Wash.—Bridges or fills to replace bridges, to J. H. Savage, to fill Lapray bridge road near Chewelah; to Ellis Overman, Nevins fill near Chewelah; to John Acorn and J. L. Bayley, respectively, Davis bridge and Lower Trimble Creek bridges, near Cusick; to William Oliver, Spokane, two concrete piers in Kettle River, Rockcut, \$2,395.

Port Townsend, Wash.—Construction of large bridge across Chumacum Creek, to W. H. Davis, Olympia, \$6,000.

BIDS RECEIVED

Marysville, Cal.—Reflooring approach to Feather River bridge, Marders & Beere, city, \$6,975; Pacific Construction Co., \$7,130; Western Bridge and Construction Co., Sacramento, \$5,290; E. Malley, San Francisco, \$5,700.

Palmer, Mass.—Constructing three-arch bridge over Chicopee River at Bridge st.: W. N. Flynt Granite Co., Monson, for all granite construction, \$27,371; concrete, granite face, \$23,300; John Donahue, Springfield, all granite, \$28,500; concrete, granite face, \$24,500; Daniel O'Connell's Sons, Holyoke, all granite, \$30,800; concrete, granite face, \$23,380.

Wilkesbarre, Pa.—Construction of a concrete floor covered with asphalt and car tracks on the Berwick-Nescopeck Inter-county bridge, C. H. Reimard, Bloomsburg, Pa., concrete floor and roadway, \$12,338.40; asphalt wearing surface, \$9,894.73; painting floor surface with two coats graphite paint, \$1,635.21; railroad track, \$2,800; total \$26,668.40; John P. Fooley, city, concrete floor and roadway, \$12,920; asphalt wearing surface, \$11,486; painting floor system with two coats of graphite paint, \$1,484; railroad track, \$3,000; total, \$28,890.

MISCELLANEOUS

Chico, Cal.—City Trustees rejected bids for improvement bonds.

East San José, Cal.—Plans for jail and fire house have been presented to Board of Trustees by Howard Waltz, representing J. K. Vrooman.

Oakland, Cal.—Park Commissioners directed Oscar Paget, City Landscape Architect, to prepare set of plans and drawings for beautification of the district at head of the northeastern arm of Lake Merritt by means of boulevards and thoroughfares and by building of boat landing in the lake waters; specifications of Architect Walter D. Reed for McElroy memorial fountain to be erected in Lakeside Park at cost exceeding \$12,000 has also been adopted; Secretary will advertise for bids.

San Francisco, Cal.—Board of Public Works will soon let contracts for constructing two incinerating plants, one in the North Beach section on Bay Taylor and North sts. and the other on Army and Rhode Island sts.—Marsden Manson, City Engineer; Rudolph Hering New York, Consulting Engineer.

Key West, Fla.—Board of Commissioners of Monroe County has rejected all bids for the erection of addition and repairs to the county jail.—J. R. Curry, Jr., Chairman.

Atlanta, Ga.—Board of Health and Bond Commission have selected site in the Ninth Ward for garbage crematory; contract for construction will soon be awarded.

Savannah, Ga.—City is having plans prepared by J. de Bruyn Kops, for proposed market improvements, including new floors and screened stalls; will probably install refrigerators or refrigerator showcases; cost, \$10,000.

Mt. Vernon, Ind.—Council is having plans drawn up for a river front park along levee.

Louisville, Ky.—Board of Public Works has asked for seven-passenger \$2,000 automobile.

New Orleans, La.—City Engineer is considering plans and specifications for sea wall and filling at West End, about 2,700 ft. long and 14 ft. high.

Hagerstown, Md.—Town is considering installation of garbage plant.

Boston, Mass.—City will itself handle garbage collection and disposal when present contract expires in 1912; Mayor John F. Fitzgerald and Superintendent Louis Rourke are making an exhaustive study of the subject, and will visit plants at Staten Island and Barren Island, New York; Milwaukee Montreal and other cities.

Adrian, Mich.—Wm. K. Bixby has made city gift of \$25,000 for erection of city hospital.

Minneapolis, Minn.—Park Board will erect proposed bath house at Lake Calhoun; cost, \$73,000.

Kansas City, Mo.—Council has passed ordinance appropriating \$3,000 for motor car for Commissioner of Cleaning.

Atlantic City, N. J.—Plans are being prepared for improvements to Atlantic County jail and Clerk's office; \$60,000 available.

Brooklyn, N. Y.—The Department of Docks and Ferries of New York City is considering construction of 1,000-ft. dry dock.—Calvin Tompkins, Commissioner.

Cleveland, O.—Erection of \$15,000 bath house at Edgewater Park is being urged by Councilman Dittrick.

Cleveland, O.—Cost of completing West Side Market has been estimated at \$148,000.

East Youngstown, O.—Town is about to let contract for erection of \$15,000 town hall.

Portland, Ore.—That city should own and operate its own garbage collecting plant is the opinion of Dr. Alan Welch Smith, Dr. R. J. Chipman and Dr. George B. Story, of City Board of Health.

Erie, Pa.—Harbor Master has been directed to advertise for bids for dredging in front of 12 boathouses at foot of Pearl st. to minimum depth of 5 ft.

Fallston, Pa.—Borough has decided to erect modern town hall.

Lebanon, Pa.—West Lebanon Township has voted \$4,500 to complete town hall and fire engine house.

Reading, Pa.—Superintendent of Parks has asked for additional appropriation of \$1,500 to be used in making repairs to greenhouses.

Memphis, Tenn.—City has plans by Shaw & Pfeil, for police station.

Nashville, Tenn.—Mayor H. E. House has recommended construction of an incinerator; cost \$100,000.

El Paso, Tex.—Erection of house for city police is favored.

Palestine, Tex.—Citizens will vote on \$17,000 bonds for park purposes.

Paris, Tex.—Council has appropriated \$5,000 for public buildings.

Salt Lake City, Utah.—Health Commissioner has been authorized to erect at once new garbage station to replace one burned down last week, on plans of City Engineer; cost \$4,500.

Norfolk, Va.—Plans have been prepared by John K. Peebles, city, for proposed \$50,000 police station.

Wheeling, Va.—Health Committee has asked for \$10,776.30 for proposed garbage system; wagons and horses will be purchased.

Puyallup, Wash.—Erection of city hall is being considered.

Huntington, W. Va.—City has sold \$390,000 improvement bonds to Western German Bank of Cincinnati.

Whitewater, Wis.—City is to have a children's park, with facilities for swimming, gymnastics and sports.—C. F. Hill, Director of Manual Training in City Schools.

CONTRACTS AWARDED

East San José, Cal.—Sprinkling cart to San José Implement Co., Wm. J. Benson, representative.

Hoboken, N. J.—Collection of ashes and garbage, to Jas. Padavano, \$11,520.

Albany, N. Y.—Erecting steel fence about Bleecker reservoir, to Robert F. T. Wilkie, \$6,362.60.

Auburn, N. Y.—To George E. Keefe for erection of a garage for city's automobiles, \$1,589.

White Plains, N. Y.—Removing garbage, to Contractor McNeilly, \$8,400.

Hazleton, Pa.—Street sprinkler, 450-gallon, to Austin Mfg. Co., Hazleton M. & S. Co., Agents, \$260.

Nashville, Tenn.—H. P. Jacobs, lowest bidder, \$6,658.80, for erection of proposed shops and stables for Waterworks and City Engineering Departments.

Norfolk, Va.—Constructing retaining wall along Mowbray Arch to Olney rd., Dundaff st. and Pembroke ave., to E. Cross & Son Co., \$8.40 per running ft.

BIDS RECEIVED

Waterbury, Conn.—Retaining walls on S. Main st., as follows: J. S. Barbara, \$8,412; Frank D'Aurio, \$9,892.50; Antonio Lemba, \$8,085; Edward McManus, \$10,000.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Saskatchewan	Moose Jaw	Aug. 15, 8:30 p.m.	Bldg. 63,000 sq. ft. cement walks, 9,300 lin. ft. curb and gutter, 6,000 sq. ft. conc. crossings and 6 miles of wooden walks.	J. M. Wilson, City Engineer.
Illinois	Freeport	Aug. 15, 2 p.m.	Paving with brick block, two streets.	W. T. Rawleigh, Chm. Bd. Loc. Imp.
Pennsylvania	Carnegie	Aug. 15, 7:30 p.m.	Repeating portions of 6 streets.	M. M. Everly, Chm. St. Com.
New Jersey	Camden	Aug. 16, 8 p.m.	Furn. portable asphalt repair plant.	Edw. Francis, Comr. of Streets.
New Jersey	Trenton	Aug. 16, 8 p.m.	Paving Decatur st. with vit. bricks.	H. B. Salter, City Engineer.
New York	Binghamton	Aug. 17	Bldg. cement sidewalks on Helen st.	City Clerk.
New Jersey	Cranford	Aug. 17, 8 p.m.	Grading Elizabeth and two other avenues.	J. L. Bauer, Twp. Engineer.
Pennsylvania	Harrisburg	Aug. 17, noon	Grading Sixteenth st.	W. W. Caldwell, St. Comr.
Washington	Everett	Aug. 17	Improving Walnut st.	Board of Public Works.
New York	Albany	Aug. 18	Paving 4 streets and repaving Eagle st.	F. G. Ward, Comr. Public Works.
Ohio	Springfield	Aug. 20, noon	Repaving High st., 1 mile; also paving 1 1-2 miles.	Wm. H. Mahoney, Clk. Bd. Pub. Ser.
Pennsylvania	Clifton Heights	Aug. 22, 8 p.m.	Bldg. sidewalks, curbs, etc.	John Speer, Borough Clerk.
SEWERAGE				
South Dakota	Hudson	Aug. 15, 8 p.m.	Bldg. 4,860 lin. ft. 8 to 18-in. sewers.	S. S. Oviatt, City Auditor.
New Jersey	Trenton	Aug. 16, 8 p.m.	Bldg. sewers Willow st. and Kirkbride ave.	H. B. Salter, City Clerk.
South Dakota	Sioux Falls	Sept. 6, 9 a.m.	Bldg. 66,000 ft. 8 to 36-in. sewers.	Lewis Larson, City Auditor.
WATER SUPPLY				
Saskatchewan	Moose Jaw	Aug. 15	Bldg. 3,286 lin. ft. 6-in. and 700 lin. ft. 12-in. c.-i. water main.	J. M. Wilson, City Engineer.
Iowa	Stuart	Aug. 16	Bldg. water works; cost, \$5,000; Des Moines Bridge & Iron Co., Engineers.	J. P. Kiely, City Clerk.
BRIDGES				
Ohio	Springfield	Aug. 20, noon	Bldg. bridge, East High st.; cost, \$18,000.	Wm. H. Mahoney, Clk. Bd. Pub. Ser.
LIGHTING AND POWER				
Indiana	Indianapolis	Aug. 17	Vapor street lighting contract; 200 lamps.	Board of Public Works.
Michigan	Grand Rapids	Aug. 25, 8 p.m.	Furn. and setting two 300 k.w. turbo generator sets, two surface condensers, one Turbo-exciter set and 1 motor gen. exciter.	S. A. Freshney, Sec'y Bd. Pub. Wks.
MISCELLANEOUS				
Wisconsin	Racine	Aug. 13, 10 a.m.	Sprinkling Mead st.	P. H. Connolly, City Engineer.
Pennsylvania	Taylor	Aug. 16, 7:30 p.m.	Rewiring fire alarm system.	J. S. Evans, Borough Secretary.
California	Oakland	Aug. 25, 2 p.m.	Bldg. fountain in Lakeside Park.	H. F. Vogt, Sec'y Park Commission.

STREET IMPROVEMENTS

Orofino, Ida.—Citizens have voted \$6,000 bonds to repair streets.

Nokomis, Ill.—Walter R. McCaslin, of Nokomis, is preparing estimates for about 20 blocks of vitr. brick paving with concrete curb and gutter.

Pekin, Ill.—Board of Local Improvements has decided to pave three streets with brick.

Taylorville, Ill.—City will receive bids about September 1 for 20 or more blocks of brick paving; cost, \$40,000.—J. W. Dappert, City Engineer.

Indianapolis, Ind.—County Council has decided to expend \$30,000 on repairs to gravel roads.

Indianapolis, Ind.—Board of Public Works has ordered plans for improving eight streets.

Baltimore, Md.—City Engineer Fendall will ask for bids for resurfacing cobblestone streets with sheet asphalt.

Gulfport, Miss.—Bids have been rejected and new bids will be asked for proposed sidewalk paving.

Kansas City, Mo.—Council has decided to pave Liberty st. and to repair 21 streets.

Auburn, N. Y.—City is to be the first city in State to have State road built entirely at cost of State within boundaries of the city; work will be commenced early next summer.

Hudson, N. Y.—New State road from Hudson to Livingston will be built next spring.

Cincinnati, O.—Service Director Sundmaker has ordered the City Engineer to make provision for the paving of the Shilto st. intersection with Reading road with granite blocks instead of wood block.

Cincinnati, O.—Council has passed ordinance for purchase of 8-ton asphalt roller at \$2,150 and two 15-ton steam rollers at \$500.

Muskogee, Okla.—Official returns show proposed \$100,000 bond issue to build roads and bridges defeated.

Corvallis, Ore.—Bids will be received Aug. 15, 7:30 p. m., for \$40,499.37 street improvement bonds.—Geo. W. Denman, Municipal Judge.

Ogden, Utah.—Plans for an 80-foot boulevard to connect with the Ogden canyon boulevard are being prepared by the City Engineer and the Street Department.

Chilliwick, B. C., Can.—Citizens have voted bonds for road machinery; rock crusher will be purchased.

New Westminster, B. C., Can.—Citizens have voted \$150,000 bonds for street improvements.

CONTRACTS AWARDED

Hartford, Conn.—Paving with asphalt Farmington ave., from Woodland st. west, to Southern New England Paving Co., \$24,197.

Marion, Ind.—Sharon road, two miles in extent, in Franklin township, to Wheat Sisk & Ruple, Portland, \$6,545.

Vincennes, Ind.—Improvement of St. Clair st. to Foulkes Contracting Co. of Terre Haute, as follows: Concrete walk, 8c. ft., stone curbing 36 3-4c. lin. ft., and alley crossings 10c. sq. ft.

Vincennes, Ind.—Building J. H. Crim et al. gravel road, to E. D. Russell, for \$2,030; construction of T. E. Stoelting et al. gravel road, to W. L. Brocksmith, \$1,049.

Cedar Rapids, Ia.—To M. Ford, for paving Grande ave.; curbing, to Concrete Construction Co.; other bidders were Smith Bros. and Dearborn & Jackson; curbing bids were: Concrete Construction Co., 5x18 curb, 29½c.; 6x20 curb, 34c.; resetting curb, 15c.; Smith Bros., 5x18 curb, 34c.; 6x20 curb, 36c.; resetting curb, 24c.; paving, M. Ford, brick block on 4-in. concrete, \$1.64; extra concrete per cu. yd., \$6; grading, cu. yd., 42c.; extra sand, \$1.40; 3-in. tile in place, 6c.; extra macadam, \$1.75; Dearborn & Jackson, paving, \$1.73; extra concrete, \$6; grading, 40c.; extra sand, \$2; 3-in. drain tile, 15c.; extra macadam, \$2; high cost of grading is explained by the length of the haul, which is from 4,000 to 5,000 yds.

Hiawatha, Kan.—To Thomas Thogmartin and D. P. Thomas, Fort Scott, \$70,000 street paving contract.

Baltimore, Md.—Paving Fayette st. with sheet asphalt to Filbert Constr. & Paving Co., \$22,887.

Bridgeton, N. J.—Building Malaga road to this city to A. H. Supton, city, \$8,863.01; other bidders, Richmond & Craig, \$11,989.10; Warren Brandiff, \$17,155.40; Meade & Stecker, \$10,885.88; J. A. Fisher & Son, \$11,828.56.—B. Erickson, Chairman, County Commissioners.

Binghamton, N. Y.—Court st. pavement, to A. D. Osborne, Corning brick, \$1.95.

Niagara Falls, N. Y.—Buffalo ave., from Sugar st. to the city line, will be paved by the Read-Coddington Co. with Toledo asphalt block at cost of \$72,922.90.

Rochester, N. Y.—Paving East ave., from Winton road to the city line with asphalt, to Whitmore, Rauber & Vicinus, \$23,698.50.

Utica, N. Y.—Laying 55,000 sq. ft. of sidewalk, to N. D. Peters & Co., J. F. Augar and Alex. McMullin.

Steubenville, O.—Paving W. Market st. to H. M. Bates, \$19,958.

Muskogee, Okla.—To McCormack Construction Co. for paving Court st. with Trinidad asphalt, \$22,925; Fremont st., to Phoenix Construction Co., \$19,087.17.

Fond du Lac, Wis.—Sixth st. from Main st. to Park ave. will be paved this fall by National Construction Co.

North Bay, Ont., Can.—Construction of concrete sidewalks, to the D. W. Mitchell Construction Co., Niagara Falls, Ont., 10½c. per sq. ft.; other tenders were W. G. Carr, North Bay; H. A. Nickle, Owen Sound, and R. L. Francis, Huntsville, Ont.

Outremont, Que., Can.—Construction of six brick and three tile sewers at approximate cost of \$60,000, as follows: To W. G. A. McDonald, R. T. Smith & Co. and M. Lapointe.

BIDS RECEIVED

Scranton, Pa.—Asphalt paving: Lafayette st., Thos. A. Dunn Co., \$1.65; MacDonald Construction Co., \$1.87; Warner-Quinlan Co., \$1.95, and R. C. Ruthven, \$2. Plum place: Thomas A. Dunn & Co., \$1.65; MacDonald Construction Co., \$1.95; Warner-Quinlan Co., \$1.89, and R. C. Ruthven, \$1.80; Engineer's estimate, \$1,844.75. Catlin court and Alton place: Thos. A. Dunn & Co., \$1.65; MacDonald Construction Co., \$1.95; R. C. Ruthven, \$1.90, and Warner-Quinlan Co., \$1.85; Engineer's estimate, \$6,046.50. North Bromley ave.: Thomas A. Dunn & Co., \$1.65; MacDonald Construction Co., \$1.73; Warner-Quinlan Co., \$1.95, and R. C. Ruthven, \$1.95; Engineer's estimate, \$7,411.50. North Sumner ave.: Thomas A. Dunn & Co., \$1.65; MacDonald Construction Co., \$1.73; Warner-Quinlan Co., \$1.95, and R. C. Ruthven, \$1.95; Engineer's estimate, \$7,342.

Chattanooga, Tenn.—Paving Rossville boulevard: Barber Asphalt Paving Co.: Bermudez penetrating, \$1.11 a yard; Bermudez mixing, \$1.20. West Construction Co.: Bermudez penetrating, 98c.; Bermudez mixing, \$1.16; curb, 45c. lineal foot; inlet basins, \$6 lineal foot. Noll Construction Co.: Bermudez penetrating, \$1.10; Bermudez mixing, \$1.30; Standard Oil penetrating, 84c.; Standard Oil mixing, \$1.02; curbing, 49½c.; inlet basins, \$5. Chica-mauga Quarry & Construction Co.: Standard Oil penetrating, \$1.08. Southern Paving & Construction Co.: Standard Oil penetrating, 94c.; Standard Oil mixing, \$1.19; curbing, 45c.; inlet basins, \$3.27. Chamberlain-Freeman Construction Co.: curbing, 45c.; inlet basins, \$5. Howard Eggleston: curbing, 65c.; inlet basins, \$2.99. Trimble & McCain: curbing, 63½c.; inlet basins, \$4. H. S. Bosler: curbing, 56c.; inlet basins, \$5. J. H. Bragg: curbing, 54c.; inlet basins, \$3.40.

SEWERAGE

Oakland, Cal.—City Engineer F. C. Turner has been directed to prepare plans for sewerage Fourteenth st. from Brush to Castro st.

Alameda, Cal.—Bids will soon be advertised for construction of eastern part of south side sewer.

Martinsburg, Md.—Calvin W. Hendricks, Baltimore, will prepare report on cost of sewerage system and disposal plant.

New Bedford, Mass.—Comprehensive plans for proposed intercepting sewer which have been prepared by City Engineer William F. Williams have been presented to State Board of Health.

Hightstown, N. J.—Construction of sewer system is being considered.—John R. Shangle, Mayor.

Yorkville, N. Y.—Village Board of Trustees has accepted sewer plans and specifications prepared by Engineer Stone.

Youngstown, O.—Engineer Baer of State Board of Health is investigating the sewerage system at Idora park.